

MILITARY HISTORY

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Kublai Khan vs. Samurai
Gritty Vietnam Images
Hero of Denazification
First Military Robots
Suez Canal Fiasco
Roman Army Medics

Egypt threw L300
Soviet-supplied tanks
at the Israelis in 1973

A photograph of a Soviet-supplied Egyptian T-34 tank in a desert environment. The tank is dark-colored and is engulfed in large, bright orange and yellow flames, with thick black smoke rising from the turret area. The tank's main gun barrel points towards the left. The ground is sandy and sparsely vegetated. In the bottom right corner, there is a small, faint signature that reads "AP/WIDE".

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ON THE COVER: A SOVIET-BUILT EGYPTIAN TANK SMOLDERS IN THE DESERT ALONG THE SUEZ CANAL DURING THE 1973 YOM KIPPUR WAR. (KEYSTONE-FRANCE/GAMMA-KEYSTONE VIA GETTY IMAGES)

Henri Huet, P. 42 ►

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 THEY DIDN'T WANT TO LIVE IN A WORLD IN WHICH
 WRONG PREVAILED. SO THEY FOUGHT, AND WON,
 AND ALL OF US, LIVING AND YET TO BE BORN, MUST
 BE FOREVER PROFOUNDLY GRATEFUL."**

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Military History Reader Poll:

The Mongols never did master the water—notably in their attempts to invade Japan—but two of their land campaigns also ultimately failed. How does Japan's defense strategy compare with those of the Egyptian Mamluks and Vietnamese?

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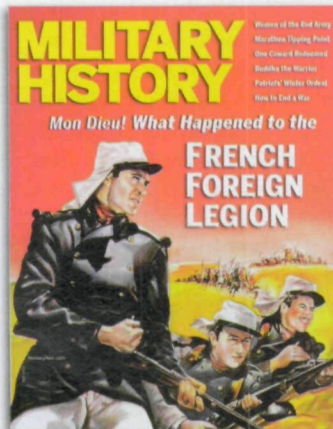
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Eyewitness from Hill 314



attack and completely disrupted the German scheme of maneuver. See Lt. Col. Mark Reardon's similar conclusion in his work *Victory at Mortain*.

As for the attempt to supply the troops on Hill 314 by firing empty shells: (1) The idea was conceived by Major Richard E. Evans Jr., the executive officer of the 230th Field Artillery Battalion, not Lt. Col. Lewis D. Vieman, as stated in the article; and (2) the effort was a total flop because of the high-velocity start and the sudden impact. I should know. I was the officer who adjusted the fire of those shells onto Hill 314, and I inspected the contents when they were retrieved and opened.

For a firsthand account see my book *Fire Mission!*

Robert Weiss
PORTLAND, ORE.

French Resistance

Thanks for the excellent article ["How Resistant?" by Stephan Wilkinson, March] on the *Maquis*. This issue has troubled the French conscience ever since the end of World War II.

I am the Lieutenant Robert L. Weiss referred to in the *Hallowed Ground* article ["Hill 314, Mortain, France," by David T. Zabecki, March]. I was particularly pleased to see the article about Hill 314 so entitled, because the 277 infantrymen and one artilleryman who were casualties made Hill 314 hallowed ground.

The hill bore the brunt of the Nazi attempt to break through to Avranches and split the American forces in two. Lest it be forgotten, the Battle of Mortain was the largest German counterattack in France in World War II. Zabecki put it right when he wrote that the defense of Hill 314 halted the left wing of the German

However, there is one error in your piece. France most assuredly was not the only occupied country in Europe with Nazi collaborators.

Norway's Quisling regime of the German occupation period collaborated with the Nazis nearly as much as France's Vichy government.

The Dutch underground was shot through with Nazi agents/collaborators. They were the proximate cause of the success of the Nazi counterintelligence Operation North Pole that saw many British agents uncovered and turned or killed—one of the causes of the failure of the British portion of the airborne Operation Market Garden.

Ukrainians provided concentration camp guards to the Nazis as well as troops to fight with the Nazis against the Soviets.

The German *Waffen SS* had divisional units composed of volunteer nationals from Norway, Denmark, Holland, Belgium and France. The Germans also had some turncoat Yugoslav, Russian, Albanian,

Arab and even Indian troops (as did the Japanese in the China-Burma-India Theater).

On the positive side, all the occupied countries also had resistance groups loyal to the Allies (or in the case of the Poles, French, Greeks, Italians and Yugoslavs, loyal to either the Soviets or the Western Allies and opposed to each other as much as they were against the Nazis).

The point is that the resistance/collaborationist situation in occupied Europe was very complicated—and not just in the French case.

Wayne Long
CHESTER, MD.

"How Resistant?" Perhaps Wilkinson should examine the Polish Resistance, or Home Army, founded in October 1939 to resist German and Soviet occupation. Following the German attack on the Soviet Union in June 1941, the Poles and Russians became "allies." As it turned out, the Katyn Forest massacre of Polish officers by the Russians in 1940 and the ar-

rest of Home Army officers proved otherwise.

The Polish Home Army was the largest resistance movement of World War II. It integrated the whole of Polish society in its struggle with the Germans, incorporating the courts, schools, sabotage, military intelligence, radio stations, couriers, mail service and a legislative body. It was a virtual underground state.

With the advance of the Red Army into Poland in 1944, the Home Army initiated Operation Tempest, a general uprising to liberate the country and establish "facts on the ground" when confronting the Russians. It culminated in the Battle of Warsaw, aka the Warsaw Uprising, on Aug. 1, 1944. Some 40,000 insurgents engaged the German army in vicious house-to-house fighting for 63 days while the Russians looked on from the other side of the Vistula. Joseph Stalin's aim of subjugating Poland and Eastern Europe was realized with the help of the Germans.

Jacek Brodowicz
WETHERSFIELD, CONN.

Atrocities

The letters in your March issue on your Japanese atrocities article ["A Culture of Cruelty," by Mark Felton, January] seem to rationalize, even justify, these savage crimes. To characterize the malignant

murder of 22 Australian army nurses and the following four years of starvation, torture and execution of many thousands of Allied prisoners variously as “mistreatment,” “physical abuse,” “wartime cruelty,” etc., is an insult to the article [and] a distortion of the truth.

The first letter quotes an unsupported 36-year-old magazine article by an English academic that in the Russo-Japanese War of 1904–05 “European observers at the front were agreed that [the Japanese]...behaved with admirable humanity and re-

straint towards their European prisoners.” This is in sharp contrast with the accounts of actual war correspondents, including Jack London. No mention is made of Japan’s barbarous treatment of Korean prisoners and civilians during and after its war with Russia.

The second letter offers the reprimand that *Military History* should not have offered its “readers still serving” the “dangerous” truth about the Japanese in World War II, as if our current military should not know and be prepared for a similar enemy in a future war. Reference to the article as a “propaganda narrative,” when it has been fully documented

and supported by photographs of murdered victims, is an ignorant falsehood.

The third letter explains that the Japanese male mysticism of treating other races as beasts apparently required them to become beasts themselves. This is much like blaming the victims of the crime.

The final letter cites the unusually generous act of the Japanese of not murdering or starving, or turning over to the Germans, some 5,000 Jewish refugees in Shanghai during the Japanese occupation of China. This rare humanitarian treatment is well documented. Tens of thousands of other civilians in Shanghai were not

as fortunate. They were only a small part of the estimated 20 million prisoners and civilians murdered by the Japanese throughout China and other occupied territories. The actual number may never be known or documented.

Edwin Houldsworth
HILTON HEAD, S.C.

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Frank Buckles shows off his *Legion d'honneur* and a photo of himself as a World War I soldier.

Frank Buckles, 110, Last Known American Veteran of World War I

"I am a little surprised that I've been selected as the one," Frank Buckles told *Military History* in 2008 of his distinction as the last known American soldier to have served overseas in World War I. Buckles lived to see his 110th birthday and spent the last several years in the limelight, an honored guest at the White House and Pentagon and feted worldwide. On February 27 he died at home in Charles Town, W.Va., joining the 4.7 million doughboys who'd gone before him.

In 1917 Buckles fibbed his way into service as a 16-year-old Army recruit. He served through war's end as a driver in England and France and repatriated German prisoners following the Armistice. During the interwar years Buckles attended business school and eventually joined a shipping company. He was in the Philippines in December 1941 when the Japanese invaded.



Held as a civilian prisoner at the infamous Los Baños internment camp, Buckles had vivid memories of the Feb. 23, 1945, Army airborne raid that freed him and 2,146 fellow American and Filipino POWs. (See Interview, P. 12).

Buckles returned stateside for keeps after the war—marrying, becoming a cattleman and raising daughter Susannah, who survives him. In 2009 he lobbied Congress to turn a neglected monument in Washington, D.C., into a National World War I Memorial [www.wwi-memorial.org]. The House passed an act toward that goal, but Buckles died before seeing his dream to fruition. On March 15 he was buried with full military honors at Arlington National Cemetery.

To learn more about Frank Buckles, the memorial fund-raising effort and *Pershing's Last Patriot*, an upcoming documentary about his storied life, visit www.frankbuckles.org.

'Sixteen-year-old boys aren't afraid of anything'

—Frank Buckles

DISPATCHES

Two World War I Veterans Remain

With the death of American doughboy Frank Buckles, just two known people survive worldwide who served in the Great War: Claude Choules (see photo), 110, of



EPH/CHOULES FAMILY/LANDOV

Perth, Australia, who joined the British Royal Navy in 1916 at age 15 and later served in World War II; and Florence Green, 110, of King's Lynn, England, who at age 17 worked the closing weeks of the war as an airfield waitress with the Women's Royal Air Force.

Bill Bower, 93, Last Doolittle Raid Pilot

Colonel William Marsh "Bill" Bower, 93, the last of the pilots to participate in the April 18, 1942, "Doolittle Raid" on Japan, died



STAFF SGT. LANE MONEAU/U.S. AIR FORCE

in January at his home in Boulder, Colo. Bower flew one of 16 B-25B Mitchell bombers that took off from USS *Hornet* for the one-way mission, the first wartime air attack on the Japanese Home Islands. All 80 raiders later received the Distinguished Flying Cross.

NPS Relaunches Civil War Website

The National Park Service has retooled its Civil War Web site [www.nps.gov/civilwar] in anticipation of



upcoming sesquicentennial activities. Site components include a detailed and fully linked calendar of events, such as exhibitions and reenactments; a state-by-state listing of sesquicentennial organizations and activities; an interactive "Plan Your Visit" map; and a comprehensive 150-year historical timeline. The site also offers educational tools and information about battlefield preservation efforts.

LOC Displays First U.S. Map with Flag

Through 2016 the Library of Congress [www.loc.gov] will display Abel Buell's 1784 "New and Correct Map of the United States," the first known map to depict Old Glory. Printed scarcely six months after the formal end



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of the Revolutionary War, the map shows the rough boundaries of the fledgling nation with the 13-star flag at lower right. The map is on loan from private collector David Rubenstein, who won it at a recent Christie's auction [www.christies.com] for \$2.1 million.

Trove of World War I Photos Rediscovered

Australian researchers have turned up a unique collection of World War I-era glass-plate negatives in the attic of a French farmhouse. The "Thuillier Collection"

[www.facebook.com/lostdiggers], named for husband-and-wife photographers Louis and Antoinette Thuillier, features more than 3,000 images of Allied soldiers recuperating from the horrors of trench warfare. The Thuilliers, farmers in the Somme valley village of Vignacourt, took and sold snapshots of passing soldiers. Louis himself served two years in the French army.

The photos offer a rare look at the Western Front, as soldiers were banned from carrying cameras. The research team included a crew



from the Australian TV program *Sunday Night*, Australian War Memorial [www.awm.gov.au], historian Peter Burness and French amateur historian Laurent Mirouze, who first learned of the collection.

THUILLIER COLLECTION/ COURTESY OF SUNDAY NIGHT/SEVEN TV NETWORK AUSTRALIA

'To jaw-jaw is better than to war-war'

—Winston Churchill

Blackbeard's Sword?

Maritime archaeologists working off the coast of North Carolina have retrieved the hilt and pommel of an ornate sword from the wreck of *Queen Anne's Revenge* [www.qaronline.org], flagship of Edward Teach—the notorious pirate Blackbeard. The team stops short of calling it "Blackbeard's sword," but the find does help date the wreck.

Teach used the French man-of-war to blockade and



extract ransom from the port of Charleston, S.C., in late May 1718. Continuing up the coast to Beaufort, N.C., he abandoned *Revenge* when it ran aground. Researchers have recovered more than 15,000 objects from the ship since its discovery in 1997,

displaying many of the artifacts at Beaufort's North Carolina Maritime Museum [www.ncmaritimemusems.com/beaufort].

COURTESY OF THE NORTH CAROLINA DEPARTMENT OF CULTURAL RESOURCES

WAR RECORD

It's not just the mercury that rises in June and July. Clear skies and longer days prompt men of action to rise up and make decisive moves, whether on land, at sea or in the air.

■ **June 15, 1967:** A company from the U.S. 1st Infantry Division tangles with Viet Cong near Phuoc Vinh. French-Vietnamese combat photographer Henri Huet (see P. 42) captures the firefight, including a tense scene of soldiers under sniper fire.

■ **June 23, 1281:** Kublai Khan's Eastern Route fleet from Koryu (modern-day Korea) reaches Hakata Bay during the Mongol chieftain's second invasion of Japan (see P. 58). For the second time a typhoon quashes his invasion plans.

■ **July 1, 1946:** The U.S. detonates atomic bomb *Able* 520 feet above Bikini Atoll as part of Operation Crossroads. Eight B-17s modified as radio-controlled drones (see P. 66) take radiation samples and conduct tests inside *Able*'s lethal mushroom cloud.

■ **July 10, 1943:** The U.S. Army's 3rd Infantry Division successfully lands on the beach at Licata, Sicily, under the command of Maj. Gen. Lucian Truscott (see P. 50). Truscott's valor in action the following day would earn him the Distinguished Service Cross.

Tree-Planting Effort to Honor War Dead

This year the nonprofit Journey Through Hallowed Ground (JTHG) Partnership [www.hallowedground.org] launches its four-year Living Legacy Tree Planting program to honor the soldiers who died in the Civil



© WILLIAM SHERMAN/ISTOCKPHOTO

War. The initiative will plant one tree for each of the 620,000 Union and Confederate casualties, eventually lining both sides of the 180-mile JTHG National Scenic Byway (U.S. 15, VA 231, VA 20 and VA 53), which runs from Thomas Jefferson's Monticello [www.monticello.org] near Charlottesville, Va., to Gettysburg National Military Park [www.nps.gov/gett] in Pennsylvania.

Mary Rose Honored with British Coin

Great Britain has unveiled a limited-edition £2 coin to mark the 500th anniversary of the launch of *Mary Rose*—flagship of Henry VIII's Tudor navy—which sank off the Isle of Wight in 1545 while leading an attack on a French invasion fleet. Salvaged in 1982, the wreck is the centerpiece of a Portsmouth museum [www.maryrose.org] scheduled to open in 2012. The coin edge bears the inscription YOUR NOBLEST SHIPPE, 1511, from a letter written by Lord Admiral Sir Edward Howard to the king.



DAVID PARRY/FPA WIRE



KURZ & ALLISON/LIBRARY OF CONGRESS

The battlefield at Manassas, Va., above in a c. 1890 print, will be first to mark the sesquicentennial.

First Manassas Commemoration Opens Civil War Sesquicentennial

On July 21, 1861, Union and Confederate forces met in rural northern Virginia at the First Battle of Manassas, or Bull Run—the first major land clash of the Civil War and the place where Colonel Thomas “Stonewall” Jackson earned his famous moniker and a measure of credit for the Confederate victory. Now, 150 years later, it's only fitting the sesquicentennial commemoration of the war begin there as well. Virginia officials and historians plan four days of events (July 21–24) around the anniversary of the battle, including ongoing living-history demonstrations, exhibits, period baseball games and live music.

The program at Manassas National Battlefield Park [www.nps.gov/mana] kicks off July 21 with opening remarks and battlefield tours. At 4 p.m. Old Manassas Courthouse hosts a re-creation of the National Jubilee of Peace, a

1911 reunion of Union and Confederate veterans. On July 22 at 10 a.m. the town welcomes a full-dress military parade, while the Manassas Museum [www.manassasmuseum.org] opens the state's official exhibit. That afternoon Warner Home Video will premiere an extended director's cut of the Civil War epic *Gods and Generals* at Manassas' Hylton Center for the Performing Arts [www.hyltoncenter.org].

The weekend starts with a bang on July 23, as an estimated 10,000 re-enactors replay the battle [www.manassasbullrun.com] at Pageland Farm in nearby Gainesville. The program closes on July 24 with a 10 a.m. interfaith service on the Manassas Museum lawn, followed by a wreath-laying ceremony by the United Daughters of the Confederacy at Manassas City Cemetery. For more information visit www.manassascivilwar.org.

‘There stands Jackson like a stone wall!’
—Confederate Army Brig. Gen. Barnard Bee

Groups Battle for Iowa Ownership

Two California nonprofits are vying for USS *Iowa* (BB-61), the "Big Stick" of World War II and Korean War fame. Later this year the Navy will donate the



DEPARTMENT OF DEFENSE

battleship to either the Los Angeles-based Pacific Battleship Center [www.pacificbattleship.com] or the San Francisco-based Historic Ships Memorial at Pacific Square [www.battleshipiowa.org] for use as a floating museum. In service on and off from 1943 to 1990, *Iowa* did everything from hosting presidents to serving as the testbed for the RQ-2 Pioneer UAV (see related feature, P. 66).

Museum Spares Olympia—for Now

Philadelphia's Independence Seaport Museum [www.phillyseaport.org] has funded interim repairs for the deteriorating USS *Olympia*, Commodore George Dewey's



© AMIN TANG/ISTOCKPHOTO

flagship at the 1898 Battle of Manila Bay. The museum is seeking transfer candidates for the protected cruiser, which requires an estimated \$10 million in essential repairs. If it can't find a taker, the struggling museum may scrap *Olympia* or have the ship scuttled as an artificial reef.

Stained-Glass Hitler Speaks of Resistance

Parish officials at St. James Church in Montgeron, France, recently confirmed a 70-year-old secret in plain sight: a stained-glass swipe at Adolf Hitler. Unveiled in 1941, the work was a subtle gesture of resistance, portraying the *führer* as a sword-wielding executioner poised to behead the apostle James, who represents the Jews. (In Hebrew the name James has the same etymology as Jacob, father of the 12 tribes of Israel.)



BORIS HORVAT/AFP/GETTY IMAGES

The panel is the work of brothers Henri and Joseph Mauméjean, who were known to incorporate political messages into their art. In this panel they deliberately obscured Hitler's telltale moustache to avoid detection. A journalist spotted the likeness earlier this year and learned the backstory from a local priest.

'For now we see through a glass, darkly'
—1 Corinthians 13:12

Brooklyn Navy Yard Museum Underway

The Brooklyn Navy Yard, birthplace of such iconic American warships as USS *Maine*, USS *Iowa* and USS *Missouri*, will celebrate Veteran's Day with the opening of a \$25.5 million museum and visitor center on the 300-acre property, now a bustling city-run industrial complex. Dubbed Brooklyn Navy Yard Center at Building 92 [www.bldg92.com], the museum will spotlight the shipyard's 210-

year history, presenting various relics and personal accounts and offering guided bus tours of the site.

Highlights include the antebellum Dry Dock 1, where



USS *Monitor* was outfitted with its signature revolving turret, and the 60,000-square-foot U.S. Naval

Hospital, constructed in 1838. The yard produced more than 160 ships that saw action in 15 conflicts, from the War of 1812 to the Persian Gulf War.

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FIRST TO THE FIGHT

The July 21–24 Civil War sesquicentennial kickoff at Manassas commemorates the first major battle of a war filled with firsts. Other new entries in the pages of combat history include:

■ Monitor vs. Merrimac:

The first ironclad clash in naval history occurred March 8–9, 1862, when USS *Monitor*, sporting a unique revolving turret, fought CSA *Virginia* (the rebuilt steam frigate USS *Merrimac*) to a draw off Hampton Roads, Va.

■ Hunley vs. Housatonic:

On Feb. 17, 1864, CSS *H.L. Hunley* rammed USS *Housatonic* off Charleston, S.C., and detonated a torpedo against its hull, becoming the first combat submarine to sink an enemy warship. *Hunley* itself sank soon afterward.

■ USS Cairo:

The ironclad *Cairo* had the misfortune of becoming the first ship sunk by a naval mine, on Dec. 12, 1862, while clearing the Yazoo River prior to the attack on Haines Bluff, Miss. Rebels ashore triggered the mine as *Cairo* passed.

■ Dog Tags:

The first crude combat ID tags came into use during the Civil War, when soldiers pinned paper notes with their name and address to their coats; others stenciled IDs on knapsacks or scratched info on the backs of belt buckles.

Frank Woodruff Buckles: From Doughboy to POW

When Frank Woodruff Buckles, 110, died on Sunday, Feb. 27, 2011, he was the last known survivor of the 4.7 million Americans who served in World War I. Born in Harrison County, Mo., on Feb. 1, 1901, he lied about his age and enlisted in the U.S. Army on Aug. 14, 1917. The 16-year-old shipped “over there” in December 1917 and served in England and France as a driver. After the Armistice he repatriated German POWs. He was honorably discharged in November 1919.

Those two years of his young life came to define Buckles in later years. Yet he endured a longer and far greater trial in World War II. In December 1941 Buckles was in Manila, working in the shipping business, when the Japanese invaded the Philippines. He spent the next 39 months as a civilian prisoner of war, wasting down to a 100-pound shadow of his fit prewar self. In a daring raid on Feb. 23, 1945, Army paratroopers liberated Buckles and 2,146 other POWs from the Los Baños internment camp. He was waiting with rucksack in hand.

On March 15, 2011, Buckles was buried with full military honors at Arlington National Cemetery.

In 2008 Military History spoke with him about experiences as a soldier and as a POW. Following are excerpts of that long evening’s chat in his Charles Town, W.Va., farmhouse.

When did you think to enlist?

I’d thought about it since I was 3.

At such a tender age?

Well, sure. Don’t boys have any ambition? Don’t they think of anything other than just eating and sleeping?

Girls...?

If you spend your time just thinking about girls, you don’t get anyplace, as far as adventure is concerned.

Did you tell anyone you’d enlisted?

My grandmother. She spoke very sensibly about it, wasn’t at all surprised. Her grandfather had served in the American Revolution and was killed at the Battle of Oriskany.

The first my parents knew about it was when they received a postcard saying that I was on my way to training camp.

Where did you take basic training?

Fort Logan, Colo. I went into the regular U.S. Army, where I was allowed to choose my service. I told them, “I want to go to France.” I was in a hurry. I enlisted in the ambulance service, because the French were begging for ambulance drivers.

The Army then sent me to Fort Riley, Kan., for intensive training in trench retrieval.

When did you ship out?

I went to England in December 1917 on *Carpathia*, the ship that came to the rescue of *Titanic*. Some of the crew were quite willing to talk about it.

Carpathia went to Glasgow. And from there soldiers went by train to Winchester. They called it a rest camp. You might be there for a week, 10 days. Then they’d put you on a ship across the channel.

How did you get to France?

I figured out that at the end of a certain lane [embarking soldiers] would be marching along at night, no lights anyplace, and you’d just fall in line. The troops’ movements were all mixed up just as they got aboard, going to Southampton. You got it made.

Did you have it made?

I took three men into my confidence. But that night I had to take somebody someplace. There was no fooling about in those days. You didn’t waste government gasoline. And I didn’t show up.

The other three men followed my instructions, and they made it over to France.

They came back under escort.

Did they get into any trouble?

Sure, two or three months of hard labor—just sawing logs with the guards. But when they would see me toodling past [laughs while shaking fist].

How did you get to France?

A company had left an officer behind [in England], and he needed an escort.

How were French citizens faring?

They were mighty glad that we were there. I’d fill up my plate [at mess] and turn it over to the children—they’d eat it right up. When we got to Germany, the children would take it home to feed the whole family.

How did you wind up in Germany?

We took a trainload of prisoners. When we first got into Germany, the train stopped for refreshments and coffee. The prisoners all lined up—course, I lined up too. Then came

“When the paratroopers started dropping—that was different. Nobody had ever heard of a paratrooper.”

my turn. An older German gentleman [handed me] the coffee, and I said, “Danke, sir. Das Kaffee sehr gut.” With that, he reached down behind the counter and brought up a loaf of

Did you return to Europe?

I worked with the Roosevelt Steamship Co. We had the contract to carry mail to England, France and Germany from 1931 to 1938.



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potato bread, cut off a slice and gave it to me. “Danke, sir. Das Brot sehr gut.” With that, I got a piece of bologna—and I realized the importance of a foreign language.

How was life in postwar Germany?

During the occupation the Army found everything they could to keep the Germans busy. A busy man doesn't get into trouble.

[General John “Black Jack”] Pershing was principally responsible for that. He was an exceptional man—just perfect for that job. We didn't have anybody who could have done it as well.

When [World War II] started, the government converted our ships into Marine Corps transports. And that left me without a job. So I took a job at the Port of Manila with the American President Line.

What happened to you on Dec. 7, 1941?

It was December 8 out there. The [Japanese] started bombing the Philippine camps and were landing all over the place. By January 2 Manila was under Japanese domination.

They instructed people to come to Santo Tomas University. It covers about 40 acres in the city and has a wall around it—an ideal place for a prison

camp. I was in Santo Tomas at first. Then 800 men went out to Los Baños.

What do you remember from the Los Baños raid?

By the end of February 1945, the Japanese realized they couldn't hold out any longer. When asked what they would do with the prisoners, one of the guards demonstrated how he was going to execute them at roll call on the 23rd. Well, three men escaped and got word to [General of the Army Douglas] MacArthur's headquarters.

When we saw the planes flying over, we thought nothing of it, because we'd been seeing MacArthur's big cargo planes for some time. But when the paratroopers started dropping—that was different. Nobody had ever heard of a paratrooper. They landed just beyond the camp. During the night, Filipino guerrillas had been hiding up in the trees. They hopped down, cut the wires and came in.

What did you do?

A few years before, a Filipino boy had starched up my tailor-made shirts and shorts. I went to my room and brought those down. And I had a pair of knit socks. I was one of those men that always had a pair of shoes and kept them shined. I dressed and put on the rucksack with my drinking cup and a pound of sugar in it.

Three of us had saved something for the last emergency: a can of Spam, a can of beans and my screw-top coffee can full of brown sugar. We got together while waiting, cooked the beans and put sugar all over the top. And it was so delicious... ahhh!

Do you harbor any bitterness toward your Japanese captors?

Well, what can you do? Bitterness doesn't do you any good. **MH**

To read the full interview with Frank Buckles visit www.militaryhistory.com.

What We Learned...

from the Suez Crisis

By Stephan Wilkinson

The nine-day Suez Crisis of 1956 was sparked by a series of what in hindsight seem playground-worthy disputes, though they could have led to global Armageddon. That year Egypt switched its allegiance from Western arms suppliers to the Soviet bloc, buying a package of jet fighters, armor and artillery from Czechoslovakia. In response the United States

advanced toward the Suez from the east, an Anglo-French force would land paratroopers and marines west of the canal, ostensibly to protect their liquid asset. The pincers would trap and annihilate the Egyptian army. The excuse for the invasion would be the issuance of an Anglo-French ultimatum to Israel and Egypt to cease fire and accept Western control of the canal, which the coalition knew Nasser would reject. While British bagpipers skirled and French Foreign Legionnaires flipped stiff salutes to their *kepis*, the 800-megaton gorilla in the room was the inevitability that Egypt would appeal to the Soviets for help.

The United States was blissfully unaware of the Anglo-French-Israeli coalition until it was almost too late. President Dwight Eisenhower had suffered a heart attack and was in the midst of campaigning for a second term, and the Hungarian Revolution had everyone's attention. Eisenhower was furious at his World War II allies. On November 1, under heavy U.S. pressure, the UN General Assembly voted for a cease-fire, which took effect a week later. By that time the Israelis owned Sinai, and the British had occupied Port Said. That wouldn't last long. On December 22 Britain pulled its troops from Egypt, ending 74 years of occupation of the canal zone. Three months later Israel withdrew from Sinai.

Final score: Egypt 3; Britain, France and Israel 0.

Lessons:

■ Always let an ally know if you're about to do something that might spark a nuclear holocaust.

■ Helicopters are handy. The Royal Marines pulled off history's first troop-carrying helo assault, on Port Said. Unfortunately, they hadn't yet figured out how to establish a proper LZ; one landed in the middle of an Egyptian-held stadium.

■ Don't annoy the guy whose carriers are twice as big as yours. When Admiral Arleigh Burke was asked if Sixth Fleet could stop the Anglo-French invasion fleet, he said, hell yes, not just the fleet but he could take out the Israelis and Egyptians in the bargain.

■ Untrained fighter pilots are useless. Egypt got a shipment of new MiG-15s from Czechoslovakia but didn't have time to train its pilots how to fly them.

■ Untrained fighter pilots flying first-generation MiG-15s and de Havilland Vampires against second-generation Israeli Dassault Mystère IVs are not just useless but dead.

■ If you're going to fight a war in a desert, make sure you have vehicles that can drive on sand. The Israelis didn't, having depended on a shipment of French front-wheel-drive trucks that never showed up.

■ You're in trouble if your commander is an alcoholic drug user, which described incompetent Egyptian General Abdel Hakim Amer, who 11 years later killed himself after losing the Six-Day War to Israel.

■ The French learned not to trust the Americans or the British. France dropped out of NATO as a result of the Suez War and eventually developed its own nuclear force but was never again a world power.

■ The Israelis learned never to rely on another country for tactical assistance. The Suez Crisis also taught Israel the value of the pre-emptive strike—a principle it employed to effect in the Six-Day War. **MH**



British troops of the Anglo-French force wait to board helicopters on HMS *Theseus* as Port Said burns.

withdrew its promise of funding for the colossal Aswan Dam project. Egyptian President Gamal Nasser then seized the Suez Canal.

The British weren't about to let the Egyptians nationalize a waterway they felt they owned—which, in terms of canal corporation stock, the Brits did. But they needed an excuse to invade. Enter Israel, with whom Britain and France secretly formed an anti-Egypt coalition. The Israelis would pre-emptively seize Sinai, a vast quadrant of desert they'd long wanted as a buffer zone, and as they

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Young Man on a Mission

By Stephen Harding



Karl Richter
U.S. Air Force
Air Force Cross
North Vietnam
April 20, 1967

By the time 1st Lieutenant Karl Wendell Richter lifted off in his F-105 Thunderchief from the runway at Khorat Royal Thai Air Force Base on April 20, 1967, he was already a bona fide hero. Holder of several decorations for bravery, youngest pilot to shoot down a MiG over Southeast Asia and veteran of some 175 combat missions, Richter was widely considered by his peers to be among the most experienced, capable and aggressive fighter pilots in the U.S. Air Force. And he was just 24.

Born in Holly, Mich., on Oct. 4, 1942, Richter only discovered his passion for flying after graduating from high school. A self-confessed mediocre stu-

dent, he was casting about for some sort of career when his sister, Betty May—a flying enthusiast—recommended he apply to the U.S. Air Force Academy. Richter did so and, much to his own surprise, was accepted. Though he didn't excel at academics, he came to love the academy and the Air Force and was determined to become a fighter pilot. Upon his graduation in June 1964 he started on the road to that goal by winning assignment to flight school, where he proved a natural pilot. He polished his skills during advanced training in the F-105 and put those skills to the test within days of arriving in Southeast Asia in early April 1966.

Flying with the 421st Tactical Fighter Squadron of the 388th Tactical Fighter Wing out of Khorat, Richter quickly showed himself to be an exceptional combat pilot. Within a few months he was named an element leader, and thereafter was routinely tapped to introduce far more senior officers to the rigors of flying “Downtown”—to Hanoi, Haiphong and other heavily defended targets in North Vietnam. Though normally tasked with defense-suppression and ground-attack missions, on Sept. 21, 1966, Richter used his “Thud’s” internal 20mm cannon to down one of two MiG-17s that had attacked the lead pair in his four-plane element.

But the greatest achievement of his career was yet to come.

Richter's mission that April day in 1967 was to lead his flight of F-105s against anti-aircraft artillery and surface-to-air missile sites protecting an important North Vietnamese railroad facility. Once they had suppressed the defenses, successive waves of U.S.

fighter bombers would pound the rail hub. But when Richter and his flight arrived in the designated target area, they found it shrouded by clouds that completely hid both ground reference points and, more important, the enemy defenses.

Demonstrating what his commander later called “great professional skill and undaunted determination,” Richter led his flight in repeated attacks on the enemy defenses. Braving concentrated heavy-caliber gunfire and multiple SAMs, the F-105 pilots used 750-pound bombs and 20mm cannon fire to destroy several of the sites and heavily damage others. When the aircraft of the main strike group arrived, they encountered only light enemy fire and were able to completely destroy the target.

Richter's commander recommended the young pilot for the Air Force Cross—the service's second highest award for valor in combat—for his actions that day. Sadly, by the time higher headquarters had approved the decoration, Richter was dead. On July 28, 1967, during a relatively easy mission—Richter's 198th, by most counts—enemy anti-aircraft fire struck his F-105. Though the young pilot successfully ejected from his crippled aircraft, the wind dragged his parachute across a ridge of jagged karst outcrops. When a rescue helicopter arrived, its crew found Richter severely injured and unconscious; he died en route to a hospital.

In addition to the Air Force Cross, Richter also held the Silver Star, four Distinguished Flying Crosses, the Bronze Star, 21 Air Medals and the Purple Heart. In 1969 the Air Force Academy posthumously awarded him the Jabara Award for Airmanship, and in tribute to his professionalism and dedication, both the academy and Maxwell Air Force Base, Ala., home of the USAF Air University, erected statues of Richter in full flight gear. **MH**

Fairbairn-Sykes Fighting Knife

Winning wartime arguments worldwide since 1941



When Major William Ewart Fairbairn, chief of police for the British concession in prewar Shanghai, China, collaborated with Eric Anthony Sykes to design a special knife, he had murder on his mind. Conceived for the close-in combat then common in Shanghai's streets and back alleys, the Fairbairn-Sykes fighting knife saw wartime use by several Allied assault forces. London's Wilkinson Sword be-

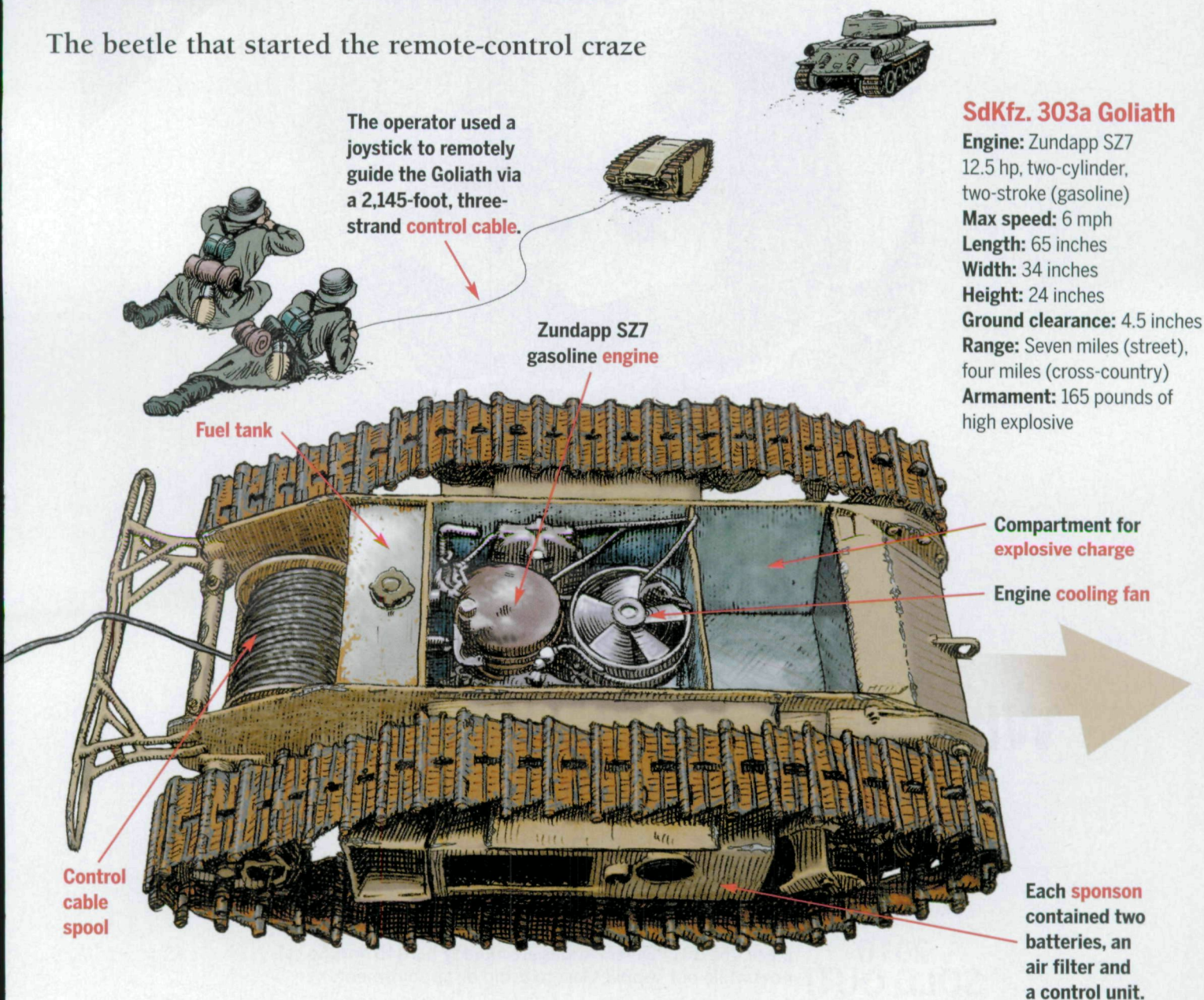
gan full-scale production in January 1941, and by war's end it and other manufacturers had produced almost 2 million knives of varying patterns and quality, some 20,000 seeing service with the U.S. Office of Strategic Services, precursor of the CIA. Brig. Gen. Robert T. Frederick, commander of the American-Canadian 1st Special Service Force (aka Devil's Brigade) designed his own variation of the knife, the V-42 sti-

letto, manufactured in western New York by W.R. Case & Sons.

Still in use today, the Fairbairn-Sykes fighting knife graces the insignias of the British Royal Marines, U.S. Army Rangers, Dutch Commando Corps and Australian 2nd Commando Regiment. It also features prominently in both the Combined Services Memorial in Westminster Abbey and the Ranger Monument at Fort Benning, Ga. **MH**

Goliath Tracked Mine

The beetle that started the remote-control craze



SdKfz. 303a Goliath

Engine: Zundapp SZ7
12.5 hp, two-cylinder,
two-stroke (gasoline)
Max speed: 6 mph
Length: 65 inches
Width: 34 inches
Height: 24 inches
Ground clearance: 4.5 inches
Range: Seven miles (street),
four miles (cross-country)
Armament: 165 pounds of
high explosive

In late 1940, inspired by a French miniature tracked vehicle prototype it recovered from the Seine, the Wehrmacht Ordnance Bureau ordered Bremen-based automaker Carl F.W. Borgward to develop a similar vehicle, capable of delivering at least 100 pounds of high explosive to a target by remote control. In spring 1942 Borgward rolled out its SdKfz. 302, nicknamed Goliath, powered by two 2.5-kilowatt Bosch electric motors. Its limited range (less than a mile on flat surfaces) and high cost

eventually led to its discontinuance. In late 1942 Borgward introduced the SdKfz. 303a, powered by a Zundapp two-cylinder gasoline engine with improved street range of more than seven miles. Two years later it produced the slightly larger 303b, which could carry a 220-pound payload. Borgward built more than 7,500 Goliaths during the war. The Allies called it the “beetle tank.”

Operators used a joystick control box connected to the vehicle by a 2,145-foot triple-strand control cable—two strands


for steering, one for detonation. Issued to combat engineers and special armored units, the Goliath was designed to disable enemy tanks, disrupt infantry units or demolish strongpoints. Its control cable proved vulnerable to cutting, however, most notably when the Germans deployed it against the Polish Home Army during the 1944 Warsaw Uprising. Though the Goliath saw little use, it did serve as the precursor of the modern radio-controlled robotic vehicles (see P. 66). **MH**

The Road Not Taken

Making choices, whether among clear-cut blacks and whites or among unpalatable shades of gray, is the defining act of leadership. It is what leaders do. Making tough decisions under duress is not easy, but a leader—a general, say—who can't bring himself to make such decisions is essentially useless. In some instances a reluctance to pull the trigger is more dangerous and destructive than making a poor decision.

In military situations, in the planning or the execution of combat operations, decisions are frequently matters of life and death, often for large numbers of soldiers. Volumes have been published on wartime leadership, many of them focused on such excruciatingly fraught choices as General Dwight Eisenhower's decision to launch or postpone the massive Allied invasion of Normandy in 1944, or President Harry S. Truman's decision to use nuclear weapons on Japan in 1945. Such choices surely brought with them a burden of responsibility most people can scarcely imagine. Indeed, both decisions determined the subsequent course of history.

But the everyday decisions of a combat commander in the midst of a hard-fought campaign are scarcely less exhausting. In the midst of VI Corps' charge from Marseilles to Strasbourg in fall 1944, its commander, Lt. Gen. Lucian K. Truscott, grew impatient with detailed tactical questions from *Life* correspondent Will Lang. Truscott walked Lang back to his command trailer and pointed to the map showing VI Corps' deployments and asked, "You saw me move this pin, didn't you?" Lang said yes. "Do you know what this means?" Lang said no. Truscott explained, "It means that by noon today 25 of my men will be dead."

Because so many noteworthy narratives in military history turn on the consequences of one leader's decision, we are devoting a new regular column, Decisions (P. 19), to those momentous choices that, as poet Robert Frost noted, "made all the difference." Edward G. Lengel, professor of history at the University of Virginia and editor in chief of The Papers of George Washington documentary project, will take charge of this column. He has been a regular and valued contributor to *Military History* in recent years and a frequent guest on radio and television programs devoted to American and military history. Lengel's most recent book is *Inventing George Washington: America's Founder, in Myth and Memory* (2011). 



An Israeli Centurion tank moves toward the Suez Canal soon after Egypt's strike into Sinai. Armed with wire-guided anti-tank missiles, Egyptian infantrymen initially took a huge toll on IDF armor.

SLUGFEST ON THE SUEZ

EGYPT CAUGHT ISRAEL BY SURPRISE
ON YOM KIPPUR 1973 WITH A
BRILLIANT CROSS-CANAL ATTACK.
THEN IDF ARMOR COUNTERATTACKED...

BY DAVID T. ZABECKI

Major General Ariel Sharon assumed command of the Israel Defense Forces' 143rd Reserve Armored Division on Oct. 6, 1973, the same day Israel mobilized the unit in response to the multiple surprise attacks that started the Yom Kippur War. The old warhorse wasn't especially happy with his new assignment. Only two months earlier the hero of Israel's first three wars had finally retired from the IDF. He'd immediately entered politics as a major figure in the Likud Party, in opposition to the Labor Party of Prime Minister Golda Meir. During the 1967 Six-Day War, Sharon had commanded the IDF's most powerful armored division on the Sinai Front, and since 1969 he'd led Southern Command, one of the IDF's three corps-level regional headquarters. Now he was back in uniform, but this time as a divisional commander, subordinate to his old headquarters, now commanded by Maj. Gen. Shmuel Gonen.

Sharon didn't like it, and there would be constant friction between him and Gonen, and between Sharon and his fellow divisional commanders. Many IDF generals considered Sharon a loose cannon, but because of his political connections Israel's military and civilian leaders chose not to

ISRAEL SUN/LANDOV

confront him. Besides, he did know how to command an armored division during a war in Sinai. Defense analysts often cite Sharon's eventual thrust across the Suez Canal into Egypt on October 16–17 as one of the more brilliant pieces of operational maneuver in modern military history—though opinions still differ.

Either way, Sharon's dash across the canal was only made possible by the protracted, bloody battle between Israeli and Egyptian forces at a place called Chinese Farm.

The start of the 1973 war shocked the IDF. After its stunning victory in 1967 the Israeli military largely rested on its laurels, and its leaders committed the cardinal sin of warfare—underestimating one's enemy. Meanwhile, the Arab states had re-focused their fundamental approach to warfighting, and with massive support from the Soviet Union the Egyptians in particular did a first-rate job of it.

In 1967 the IDF won through a combination of tactical air superiority and tanks. The only way for the Arabs to overcome Israel's military superiority was to adopt the doctrine of asymmetric warfare. The Egyptians understood that in any future war they had to separate the IDF's armor and fighter-bombers and then follow up with effective alternative means to attack the tanks.

Large numbers of Soviet-supplied S-75 *Dvina* surface-to-air missiles—designated SA-2 by NATO—was the first key. These SAMs had limited mobility and a range of only about 28 miles, but as long as Egyptian forces stayed within the SAM umbrella, the sky overhead would be a very deadly place for the Israeli Air Force. The second key was the large-scale fielding of antitank guided missiles (ATGMs), especially the Soviet weapon known to NATO as the AT-3 Sagger. Ground launched, wire guided and deadly out to nearly two miles, the Sagger enabled Egyptian infantrymen to target Israeli tanks from covered positions, thus helping to even the odds.

Artillery fire is the best way to support tanks against attack by enemy infantry. But the IDF had little conventional tube artillery in 1973, and when

the war broke out, most of that was in reserve units back in Israel. Following the 1967 victories the IDF drew the faulty conclusion that it could deliver fire support for its tanks largely from the air, thus it downsized its field artillery.

Syria and Egypt attacked Israel on October 6, Yom Kippur, the Day of Atonement, the most solemn of all Jewish holy days. Arab deception measures had been superb. When the war started, only thin IDF forces oc-



“As long as Egyptian forces stayed within the SAM umbrella, the sky would be a very deadly place for the IAF”

TOMARIN YIGAL/ISRAELI GOVERNMENT PRESS OFFICE

cupied the Golan Heights in the east and the Sinai Peninsula in the west—territories Israel had captured in 1967.

In the west Egyptian armed forces chief of staff Lt. Gen. Saad el Shazly staged a masterful assault crossing of the Suez Canal at five sites. Under supporting fire from more than 2,000 mortars and artillery pieces, the initial assault wave of Operation Badr used high-pressure water hoses to blast some 70 holes in the massive sand wall of the IDF's Bar Lev Line, along the canal's eastern bank. Egyptian infantry started crossing the waterway at 1415, and within two hours the lead elements of five divisions—some 23,500 troops—had crossed. They faced fewer than 500 reservists in the Bar Lev positions, and the Israelis lost their few tanks almost

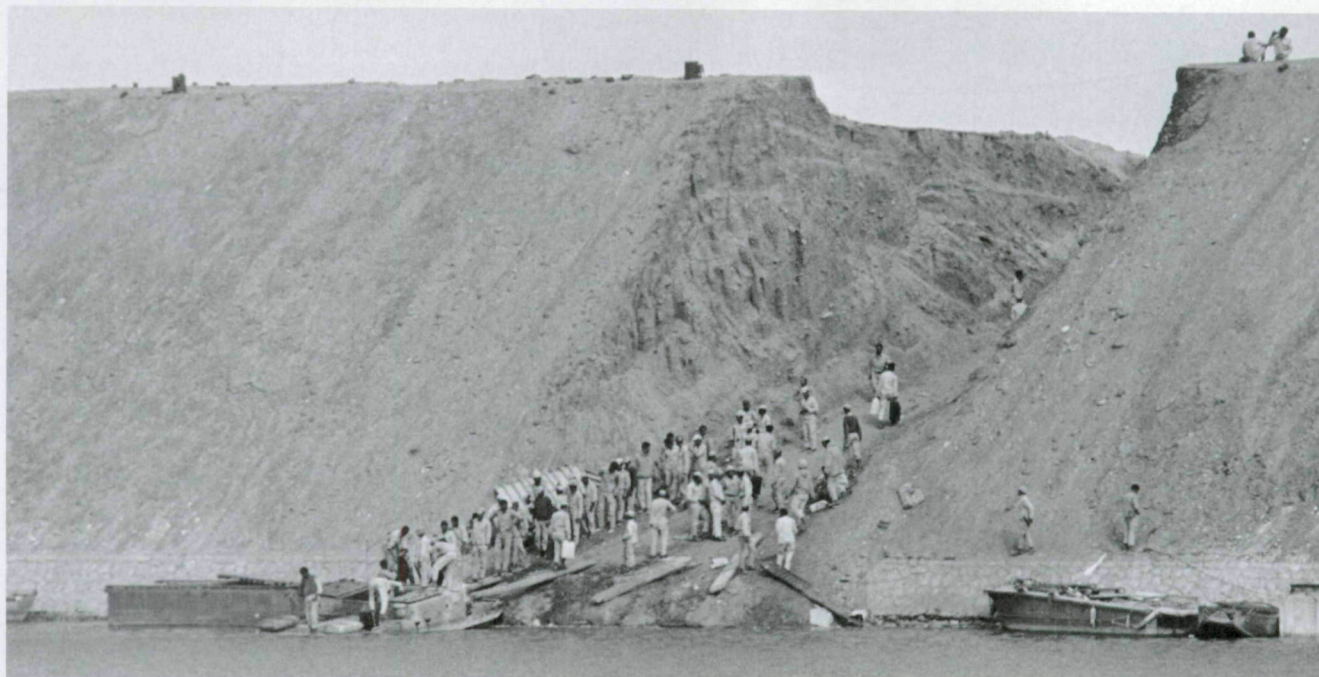
immediately. By 2030 the Egyptians had their first pontoon bridge over the canal and started moving tanks across.

The attackers consolidated their crossing points and established a cohesive bridgehead on the east bank. They then pushed forward up to six miles into Sinai and dug in, sitting relatively securely beneath the SAM umbrella and behind their ATGM shield. In addition to the SA-2s and Saggars, the Egyptians also fielded large numbers of shoulder-fired antitank rockets and anti-aircraft missiles. Fired individually, the 9K32M *Strela-2M* SAM (NATO designation SA-7b) and the RPG-7 anti-tank rocket seldom did serious damage, but fired en masse or in conjunction with heavier systems, they added another layer of threat to Israeli tanks and planes. The Egyptians repulsed the IAF's initial attacks with huge losses—49 aircraft in the first four days of the war. The Egyptians had been prepared to take 30,000 casualties to establish the bridgehead but reportedly lost only 280 killed.

When the Egyptians attacked, the IDF had only a single understrength armored division (AD) in Sinai, but the main body of Maj. Gen. Avraham Mandler's 252nd AD lay significantly back from the canal. As Mandler's units moved forward to establish a screen in front of the Egyptian bridgehead, the IDF mobilized two more armored divisions in Israel. The 162nd Reserve AD, under Maj. Gen. Avraham Adan, and Sharon's 143rd Reserve AD started forward almost immediately. By October 8 the IDF had pushed nearly 500 tanks to the western edge of Sinai, launching an armored counterattack with Adan's division supported by Sharon's. But the attack was poorly coordinated, and the Israeli commanders—still underestimating their enemies—assumed the Egyptian defense would collapse on first contact. But the Egyptians held, and by day's end the IDF had lost 180 tanks in one of its worst-ever tactical defeats.

By October 9 the Egyptian forces in Sinai consisted of two field armies, the Second Army in the north and the Third Army in the south; the inter-army boundary flanked the

EGYPT ATTACKS



ISRAELI GOVERNMENT PRESS OFFICE



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Following their 1967 capture of Sinai, the Israelis built huge sand berms along the canal, top, as part of the Bar Lev Line. In 1973 Egyptian forces used high-pressure water hoses to blast breaches in these berms.

With the berms breached, the Egyptians set floating bridges across the canal, above left, and moved troops and armor into Sinai, soon overrunning or bypassing the Israelis manning the thinly held Bar Lev Line forts.

The canal crossing and thrust into Sinai was a brilliantly executed operation of which the Egyptians were justly proud, above right. But once Israel recovered from the surprise, it moved aggressively into counterattack mode.

northern shore of the Great Bitter Lake. By then the Egyptians controlled almost all of the Lexicon Road, the primary north-south route skirting the east bank of the canal from the Great Bitter Lake north to Lake Timsah. The main east-west routes in that sector were the Akavish Road, a major axis of advance for IDF forces, and the shorter Tirtur Road, which ran roughly parallel to and about a mile north of the Akavish Road. A long-abandoned Japanese experimental

agricultural station dominated the critical junction of the Lexicon and Tirtur Roads, just north of the Great Bitter Lake. Mistaking the Japanese ideographs on the building's walls, the IDF troops called the station Chinese Farm.

Despite the previous day's tactical defeat, Sharon pushed his forces toward the enemy so aggressively that Gonen had to restrain him. As early as October 9 Sharon's 14th Armored Brigade (AB), commanded by Colonel Amnon Reshef,

advanced reconnaissance elements as far as the Chinese Farm sector and identified a gap along the boundary of the two Egyptian field armies. Sharon demanded immediate authorization to cross the canal and exploit the gap, but the IDF high command thought tactical conditions were unfavorable. Sharon disobeyed orders to remain on the defensive and continued to push forward. Fed up, Gonen asked for authority to relieve Sharon. Instead, the IDF brought

Lt. Gen. Haim Bar Lev, its former chief of staff and namesake of the Suez defensive line, out of retirement and made him an "advisor" to Gonen, effectively assuming operational control of Southern Command. Bar Lev's primary function, of course, was to control Sharon.

By October 13 the IDF had deployed its three armored divisions in Sinai on line facing the canal, with Adan's division in the north and Sharon's in the center. To the south was the 252nd AD, now under Maj. Gen. Kalman Magen (Egyptian artillery units had targeted and killed Mandler).

On the Syrian front, meanwhile, the fight had turned against Arab forces. On October 10 two IDF reserve armored brigades on the Golan Heights halted the Syrians and destroyed more than 800 Syrian tanks and armored vehicles (see "A Line in the Sand," by David T. Zabecki, in the May/June 2008 issue). The following day Golda Meir authorized the IDF to head toward Damascus. That, in turn, triggered the turning point of the Sinai campaign.

Damascus desperately appealed to Cairo to do something to relieve the pressure on Syria. Shazly and many of the Egyptian senior commanders adamantly opposed any shift to the offensive in Sinai. But President Anwar Sadat overruled them and ordered the army to attack deeper into central Sinai in a bid to seize the strategic mountain passes at Mitla, Gidi and Khatmia.

On the morning of October 14 the Egyptians attacked along a 100-mile front with the 21st AD, under Brig. Gen. Ibrahim Oraby, and 16th Infantry Division (ID), under Brig. Gen. Abd Rab el Nabi Hafez, in the north, and the 4th AD, under Brig. Gen. Mohamed Abd el Aziz Qabil, in the south. The Egyptians fielded more than 1,000 tanks against the IDF's 800, and the resulting fight was the largest tank battle since the 1943 Soviet-German slugfest at Kursk.

But when the Egyptians moved beyond their SAM umbrella, their tanks became easy prey for both IAF planes and dug-in IDF tanks. Within hours the Egyptians lost 264 tanks and more than 1,000 men, while the IDF lost only about 40 tanks; 34 of the latter were



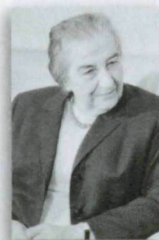
SOLDIERS, POLITICIANS AND BEST-LAID PLANS



Anwar Sadat A former army officer, he became Egypt's president upon Gamal Abdel Nasser's 1970 death and was instrumental in planning Operation Badr, the cross-canal attack, which he felt would erase the humiliations of 1967.



Lt. Gen. Saad el Shazly A gifted and charismatic career soldier, the Egyptian army chief of staff was largely responsible for planning the attack and preparing his army for it, but Sadat dismissed him soon after the IDF crossed the canal into Egypt.



Golda Meir Though she had received intelligence reports indicating that an Arab attack was likely, Israel's prime minister chose not to launch a preemptive strike for fear the international community would see Israel as the aggressor.



Moshe Dayan A legend in the IDF at the time of the Egyptian attack, the minister of defense similarly advised against a full-scale prewar IDF call-up. He expected the Arabs would start the war and was just as certain Israel would win.



Maj. Gen. Ariel Sharon Seen as a "loose cannon" by many of Israel's top military and political leaders, he was popular with his troops and was the very model of a hard-charging tanker whose sole focus was to close with and destroy his foe.



Maj. Gen. Shmuel Gonen Gonen had few friends within the IDF hierarchy, which viewed his initial response to the Egyptian attack as indecisive. The IDF brought Haim Bar Lev out of retirement to replace Gonen as head of Southern Command.

soon back in service (among the IDF's strengths was its ability to rapidly repair knocked-out tanks). After the battle Bar Lev reported to Meir: "It has been a good day. Our forces are themselves again—and so are the Egyptians."

Egypt's offensive completely disrupted the integrity of its bridgehead, and by prematurely committing most of its operational reserve, the entire Egyptian force was out of position and off balance. Late on October 14, IDF Chief of Staff Lt. Gen. David Elazar finally gave the orders to execute Operation Valiant, starting the following night. The IDF had prepared for such a crossing years in advance by positioning bridging stocks just behind the canal at three potential crossing sites. One was at Deversoir, north of the Great Bitter Lake, which coincided with the gap between the Egyptian Second and Third armies. The bridging park was at the east end of the Tirtur Road. There the IDF had prefabricated a massive roller assault bridge (RAB), 600 feet long and weighing 400 tons. Towed by 12 M48 tanks, with four more acting as brakes, the bridge rested atop 100 steel rollers—each more than 6 feet in diameter and 40 feet long—which doubled as pontoons once in the water.

After the debacle of October 14 Shazly wanted to pull the remnants of the 4th and 21st ADs back across the canal to form a mobile reserve against the IDF crossing he was sure would come. He was overruled by Egypt's minister of war, General Ahmed Ismail Ali, who feared the move would trigger a collapse in political support for Sadat. Remaining in Sinai, the 21st AD and surviving elements of the 16th ID moved toward Chinese Farm and dug in. Though the Israelis had mauled both units, they retained significant combat power. Irrigation ditches and ruined buildings at the station made it a textbook piece of defender's ground.

Operation Valiant called for Sharon's division to open the attack corridor, establish the initial bridgehead with inflatable boats and a simple pontoon bridge, then roll in the massive RAB. Adan's division would then pass through

ISRAEL RESPONDS



MICHA BIRI/AMMAGNUM PHOTOS



The IDF had little conventional tube artillery at the time of the Egyptian attack, so for fire support counterattacking Israeli units often relied on barrages of unguided rockets fired from truck-mounted launchers, top.

Sharon's, cross the canal, turn south and move toward the city of Suez at the waterway's south entrance. Magen's division would cross next and support Adan. Sharon would cover the rear of the other two divisions and hold the crossing corridor against Egyptian counterattacks. IDF commanders were aware of the enemy armor along the Lexicon Road but had apparently underestimated the force building up at Chinese Farm, a mile north of the crossing corridor.

A column of Israeli M60 tanks advances toward the canal, above left. Newer and more robust than the IDF's Centurions and M48s, the M60s performed well in Sinai, though they also fell prey to enemy Sagger teams.

Late in the afternoon of October 15 Sharon committed his 247th AB, under Colonel Tuvia Raviv, to a spoiling attack against what he assumed were the main forces of the Egyptian 16th ID in the north. An hour later Reshef's 14th AB started down the Tirtur Road to secure both the crossing site and a Bar Lev Line strongpoint codenamed Missouri that dominated the high ground north of the Great Bitter Lake. Reshef had three tank battalions, an armored recon-



ISRAELI SIN/LANDOV; LEFT: RON ILAN/ISRAELI GOVERNMENT PRESS OFFICE

Israeli soldiers in World War II-vintage U.S. built M3 halftracks, above right, watch as IAF aircraft bomb Egyptian positions. After punching holes in the enemy SAM umbrella, Israel regained air superiority over Sinai.

naissance battalion and three parachute battalions mounted in World War II-era halftracks. As Reshef's 18th Tank Battalion (TB) reached the Lexington-Tirtur road intersection, it came under heavy Sagger fire and lost 10 tanks, but the battalion pushed on toward Missouri.

Reshef's 40th TB was to secure the intersection. But only one company initially moved to clear the area, and the alerted Egyptians wiped it out. Meanwhile, Reshef's 87th Armored Recon-

BATTLE OF THE CHINESE FARM, OCT. 15-17, 1973

Egypt's October 6 cross-canal attack achieved near-total surprise. The thin line of Israeli defenses was no match for the five infantry divisions and 1,000-plus tanks that poured across the Suez into Sinai. Leading the attack were antitank units, while surface-to-air missile (SAM) batteries kept Israeli planes at bay. By October 9 Egypt controlled most of the east bank. Then, on October 14, Egyptian President Anwar Sadat pushed his forces out beyond the SAM umbrella, with disastrous results.

On October 15 Israel counterattacked. The plan called for Maj. Gen. Ariel Sharon's armored division to strike down the central Akavish Road, secure a key crossroads anchored by the abandoned agricultural station dubbed Chinese Farm and establish a bridgehead. Israeli armored divisions under Maj. Gens. Avraham Adan and Kalman Magen would then leapfrog past Sharon, cross the Suez and fan out inside Egypt. Waiting for them at Chinese Farm were entrenched Egyptian armor and infantry.



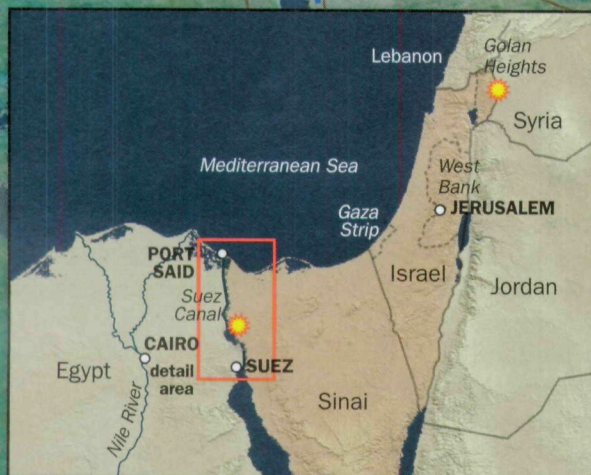
1. October 6 Under air and artillery cover, Egyptian combat engineers blast 70-some passages in the massive sand berm along the Bar-Lev Line. Egyptian tanks and troops then roll into Sinai across temporary bridges.



S-75 Dvina/SA-2 Guideline
These Soviet-supplied Egyptian surface-to-air missiles proved decisive in the opening days of the war. As long as Egyptian forces stayed within the protective SAM umbrella, they remained safe from Israeli air strikes. The moment Sadat ordered his army to advance beyond that air-defense shield was the moment Egypt lost.

9K11 Malutka/AT-3 Sagger
Another key to Egypt's initial success was this Soviet-built antitank guided missile, known to NATO as the AT-3 Sagger. With an effective range of nearly two miles, the Sagger took out scores of IDF tanks during their failed October 8 counterattack. Israeli tankers countered the Saggars with evasive maneuvers and withering suppressive fire.



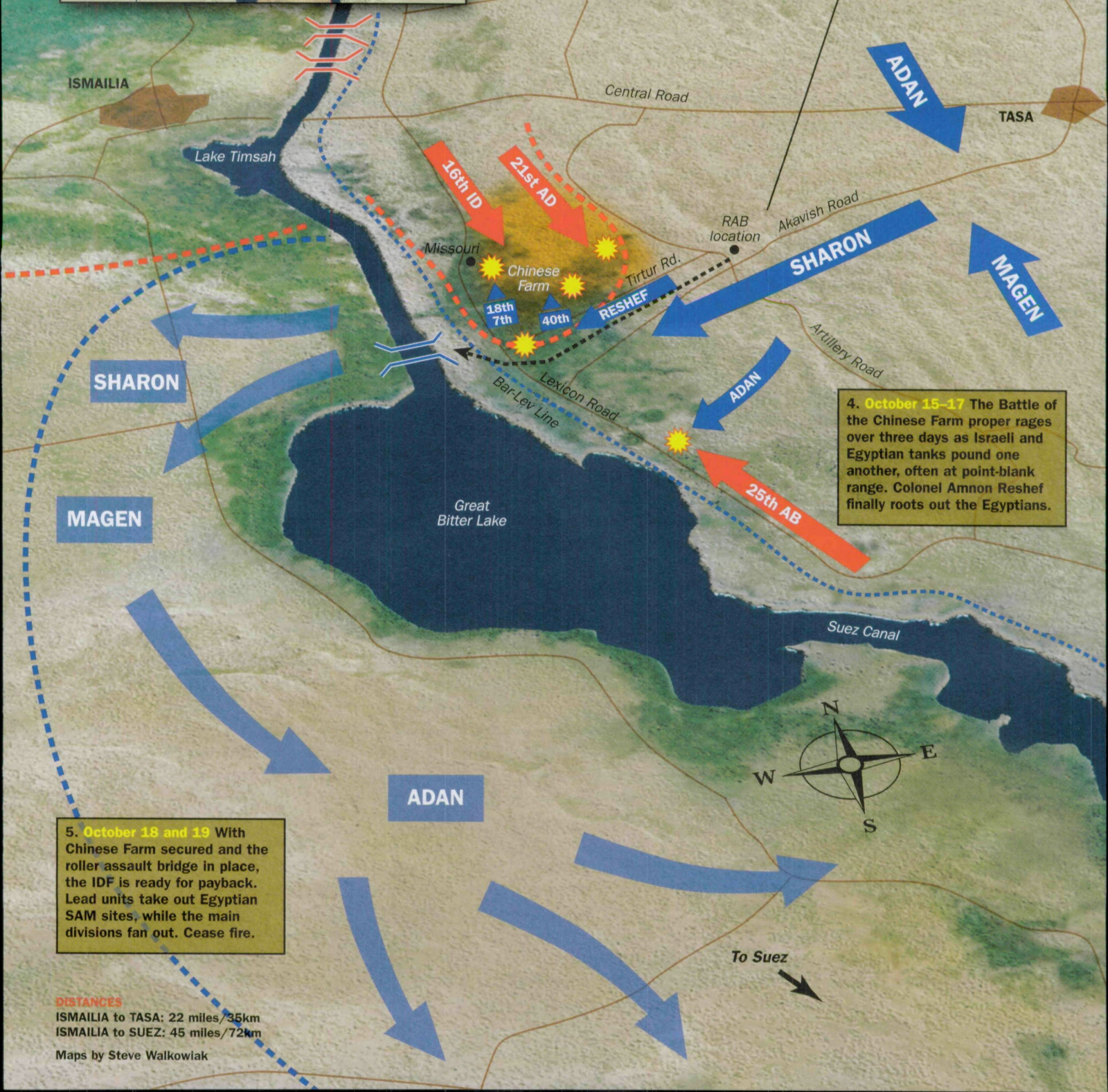


YOM KIPPUR WAR, OCTOBER 1973

On Oct. 6, 1973, military forces from Syria and Egypt launched simultaneous attacks against Israel—in the north on the Golan Heights and in the south across the Suez Canal into Israeli-held Sinai. Bolstered by more than 2,000 Soviet-supplied tanks, the coalition made early gains. Egypt secured the east bank of the canal and dug in beneath a shield of surface-to-air missiles. But when Syria faltered, Sadat ordered his troops to advance farther into Sinai to relieve the pressure. Israel pounced on his mistake.

Roller Assault Bridge (RAB)

The key to Israel's crossing of the Suez was this 400-ton behemoth—600 feet long and resting atop 100 steel rollers that doubled as pontoons.



4. October 15–17 The Battle of the Chinese Farm proper rages over three days as Israeli and Egyptian tanks pound one another, often at point-blank range. Colonel Amnon Reshef finally roots out the Egyptians.

5. October 18 and 19 With Chinese Farm secured and the roller assault bridge in place, the IDF is ready for payback. Lead units take out Egyptian SAM sites, while the main divisions fan out. Cease fire.

DISTANCES

ISMAILIA to TASA: 22 miles/35km
ISMAILIA to SUEZ: 45 miles/72km

Maps by Steve Walkowiak

naissance Battalion reached the crossing zone at about 2300. Sharon ordered Colonel Dani Matt's 243rd Paratroop Brigade to immediately cross and establish the bridgehead. But with the Tirtur and Akavish Roads under heavy fire, the IDF units jammed up, and Matt's paratroopers were far behind schedule.

The 18th and 7th TBs continued north toward Missouri, but by 2200 both units were engaged with Egyptian tanks, and the 7th was down to a third its original strength. Pushed back, the IDF units made a stand a half-mile north of Chinese Farm. Under cover of darkness the main body of the Israeli 40th TB, supported by paratroop Task Force Shmulik, resumed the attack from the south. The Israelis encountered withering interlocking fire from Egyptian armored vehicles and infantry dug into the irrigation ditches. After several hours of fighting the Egyptians had wiped out most of the 40th, and the Israelis had still not taken the crossroads.

Around 0200 on October 16 Reshef sent a company of tanks and his reserve paratroop battalion to clear the intersection. But within two hours the Egyptians had knocked out the tanks and pinned down the paratroopers; some were cut off, and Reshef was never able to extract them. At 0400 Reshef resumed the attack on Chinese Farm, trying to outflank it from the rear. That attack also failed, but starting at dawn Reshef again launched a series of attacks; his tankers finally managed to seize the crossroads by 0900.

Reshef's brigade was in shambles, and although he had pushed the Egyptians from the crossroads, they still held Chinese Farm and Missouri. Adan sent a tank battalion from Colonel Gavriel Amir's 460th AB to relieve what was left of the 14th. For the remainder of that day and part of the next that battalion, under Lt. Col. Amir Jaffe, fought off continuous counterattacks by the Egyptian 1st and 14th ABs. Reshef, meanwhile, positioned one of his battalions to screen the west side of Chinese Farm while he withdrew the remainder of his brigade south to the Great Bitter Lake. By that point Reshef's casualties num-

bered 128 dead, 62 wounded and 56 of 97 tanks knocked out. But the Israelis had destroyed some 150 Egyptian tanks.

Matt's paratroopers started crossing the canal in rubber boats at about 0135. By dawn on October 16 his brigade was across, and IDF engineers had moved 27 tanks across on rafts. The tanks fanned out to destroy Egyptian SAM batteries on the west bank. With the bridgehead established, Sharon wanted to cross in full force, even though the Egyptians still held Chinese Farm. The vital roller bridge, meanwhile, had broken down somewhere back along the Tirtur Road.



“In many places destroyed Israeli and Egyptian tanks stood just yards apart, having taken out one another at point-blank range.”

TOMARKIN YIGAL/ISRAELI GOVERNMENT PRESS OFFICE

IDF senior leaders were appalled by the losses. Defense Minister Moshe Dayan even considered canceling the operation. To Sharon's frustration, Gonen ordered him not to send any major units across the canal until he'd cleared Chinese Farm, secured Missouri and deployed the RAB. Sharon went over his head to protest, insisting they keep pushing tanks across on rafts. But Bar Lev backed Gonen—and they were right. Without adequate crossing bridges and secure approach corridors any large IDF force on the west bank would have ground to a halt within 24 hours.

Sharon wasn't buying it and put his efforts into expanding the west bank

bridgehead rather than securing the east bank approach corridors. At mid-morning on October 16 Southern Command directed Adan's division to open the Tirtur and Akavish roads and get the RAB to the canal. Gonen ordered Sharon to clear Chinese Farm and Missouri. Adan sent Colonel Natan Nir's 600th Reserve AB and Amir's 460th AB to the high ground north of the Akavish and Tirtur roads, but they ran into Sagger fire. Realizing his tanks needed infantry support, Adan called forward Colonel Uzi Ya'iri's 35th Paratroop Brigade.

But the paratroopers didn't arrive until almost midnight and were then hastily committed. Lt. Col. Yitzhak Mordecai's 890th Paratroop Battalion moved down the Tirtur Road on half-tracks, but by 0245 on October 17 they, too, were pinned down by heavy fire. About then Adan's scout company reported that the Akavish Road to the south was open. He ordered the paratroopers to hold the line along the Tirtur Road while he sent pontoon bridging equipment down the Akavish Road to the crossing site. The pontoons reached the canal at 0630, and construction of the floating bridge started immediately.

With the bridging operation underway, Adan ordered two armored brigades to clear the Akavish Road and then move north to clear Tirtur. Just before noon a tank battalion under Lt. Col. Ehud Barak, who would later become prime minister of Israel, finally relieved the paratroopers. In nearly 14 hours of close-quarters fighting they had suffered more than 40 dead and 100 wounded. The Egyptians, meanwhile, launched one last attempt that morning to cut off the Israeli corridor, striking south from Chinese Farm and Missouri with the 16th ID and 21st AD.

Adan deployed Nir's brigade from the south and Amir's brigade from the east to fix the attacking Egyptian force between Tirtur and Akavish. With Colonel Tuvia Raviv's 247th AB from Sharon's division attacking from the north, Adan had the Egyptians caught in a three-way vise. Simultaneously, Jaffe's tank battalion harassed the enemy force from the rear. After losing some 160 tanks, the Egyptians fell back to Mis-



MICHA BAR AM/MAGNUM PHOTOS

souri and the northern sector of Chinese Farm. The IDF lost about 90 tanks, but most were soon back in operation.

Meanwhile, the Egyptian 25th Independent AB was moving up the Lexicon Road from the south, behind schedule for what was supposed to have been a coordinated pincer attack against the IDF corridor. Instead of taking on both forces at once, Adan had the luxury of dealing with them in turn. With elements of Reshef's 14th AB, Nir's brigade and Colonel Aryeh Keren's 500th Reserve AB, Adan set an ambush along the shore of the Great Bitter Lake, with a minefield between the Lexicon Road and the shore. Within an hour the Egyptian 25th lost 86 of its 96 T-62 tanks and nearly all of its armored personnel carriers, artillery and support vehicles. The Israelis lost just four tanks (two to mines).

Though IDF forces had not wholly cleared Chinese Farm, the corridor was secure enough, and Adan prepared to cross the canal. The pontoon bridge was in place by 1600, and his forces started crossing that night. Sharon pushed two of his own brigades across, despite not having secured either Chinese Farm or

Apparent victors just days earlier, these men were among the more than 8,000 Egyptian troops captured by the IDF as it fought its way back to—and across—the Suez Canal. Israel repatriated them after the ceasefire.

the Missouri ridge, per Gonen's orders. The 247th AB reverted to Sharon's control, and at midday on October 18 Raviv attacked Chinese Farm, only to find that most of the Egyptians had withdrawn. Littering the site were burned-out and smoldering tanks, wheeled vehicles, half-tracks and armored personnel carriers. In many places destroyed Israeli and Egyptian tanks stood just yards apart, having taken out one another at point-blank range.

By nightfall on October 18 the RAB finally reached the canal's edge and entered the water north of the first pontoon bridge. By October 19 the Israelis had crossed about 350 tanks. They broke out the next day, Adan's division heading south toward the port of Suez, Magen's division following in support, and Sharon's division heading north toward Ismailia.

Sharon successfully badgered the IDF leadership into giving him his own exploitation mission. When the cease-fire went into effect on October 24, elements of Adan's division were on the outskirts of Suez. Sharon's advance north, however, had gained relatively little ground.

If Adan bears primary responsibility for the IDF's setback of October 8, he also gets the lion's share of the credit for winning the battle for the crossing corridor on October 17—even though that had been Sharon's mission. Throughout the battle Sharon had been too fixated on the crossing itself to pay proper attention to his more important mission. But looking at the battlefield tactically, rather than operationally or strategically, was typical of Sharon's approach. His three decades in politics following the Yom Kippur War would be characterized by such short-term thinking. **MH**

For additional reading, David Zabecki recommends On the Banks of the Suez, by Avraham Adan; The Arab-Israeli Wars, by Chaim Herzog; and Elusive Victory: The Arab-Israeli Wars, 1947–1974, by Trevor N. Dupuy.

THE BEST MEDICINE

BY RICHARD A. GABRIEL

Death came slowly to soldiers wounded on the battlefields of antiquity. The muscle-powered weapons that hacked at their flesh only rarely inflicted sudden death. Bodies pierced by spears or slashed by swords lingered in agony, sometimes for hours, until the loss of blood brought on shock, convulsions and, finally, the unconsciousness that precedes death. That was the way it was from the beginning of warfare until modern times—with one surprising exception. In the Roman army wounded soldiers had a good chance to recover and live.

Emperor Augustus (63 BC–AD 14) established history's first professional military medical corps following the 14-year power struggle sparked by the 44 BC assassination of his great-uncle Gaius Julius Caesar. Until then Roman casualties relied on whatever ad hoc arrangements their commanding generals made for them. Some, like Caesar, had physicians accompany the army. Others did nothing, leaving the wounded to whatever care their fellow soldiers could provide. Augustus realized that

to maintain troop strength and morale in the professional army he established, he would have to provide soldiers with adequate medical care. The medical corps he organized was extraordinarily proficient, its ability to treat wounds, infection and disease unsurpassed until the end of the 19th century.

Good medical care starts with good doctors. To attract physicians to military service, Augustus conferred the status of knights (*dignitas equestris*) and the rights of full citizenship upon those who joined. They received the pensions and land grants that came with military retirement and were exempt from certain taxes. Many of the physi-

Considered a legion's most valuable medical assets, Roman military surgeons used such implements as a scalpel, left, to perform lifesaving procedures on wounded soldiers. *Capsarii* ("bandagers")—such as the man, opposite, using forceps to remove debris from a soldier's injured leg—provided initial field care.



cians were Greeks trained in the empirical practice of medicine, an approach that came to characterize the Roman medical corps.

Most of the major medical innovations made during Rome's imperial period originated with serving or former military physicians. Later the army established schools to train doctors and even published its own medical books. These manuals standardized medical care for soldiers and ensured the rapid dissemination of new treatments.

Roman military medicine stood on a firm foundation: Only the healthiest recruits were permitted to join the army, and as disease had killed thousands of troops during Rome's earlier conflicts, physicians sought to minimize noncombat losses through an emphasis on hygiene that sounds remarkably modern: systematic use of sewers in military encampments; safe water supplies; healthy and varied meals; regular health inspections; preventive-health measures such as mosquito netting and sunburn oil; cremation of the dead outside the camp walls; covered latrines; and an emphasis on personal cleanliness for the soldier, his clothes and his equipment. Not surprising, despite long service in wars and other arduous and dangerous activities, Roman soldiers lived nearly five years longer than the average Roman citizen.

The greatest achievement of Roman military medicine was the provision of immediate field care by medical personnel incorporated into each legion. By the 1st century even educated physicians were required to undertake the army's standard training regimen for military medical personnel. No Western army took on the training of its own physicians again until 1865.

So important was military medicine that the commander of the medical service was the *praefectus castrorum* (camp prefect), the thirdmost senior commander of the legion. The legion's *medicus primus* (chief medical officer) was a trained physician who entered military service for a specified period of duty. Other *medici* received training in

the army and served full 25-year careers. One of these, C. Papirius Aelianus, remained on active duty until his death at age 85.

Physicians often specialized in such disciplines as internal medicine, ophthalmology and urology. Surgeons were considered the legion's most valuable medical assets, followed closely by *medici ordinarii*, regular soldiers trained to assist physicians. Providing field care during combat—itsself a major innovation—were special squads of *capsarii* (literally, bandagers), who wore the same gear as soldiers. Their job was to quickly attend the wounded and provide care until such

as many wounded soldiers as possible. This principle of expectancy also remains a central premise of military medicine. On average the Roman medical corps saved the lives of 70 percent of the wounded that reached the field hospital, a survival rate not equaled until the 1904–05 Russo-Japanese War.

The medical service was present at every level of the Roman military. Each legion had its own physician and staff. Cavalry and infantry battalions had their own medical officers and support staffs, as did irregular units. The navy, too, had a regular medical corps, with a doctor and staff assigned to each ship of



soldiers could be transported to a field hospital for treatment by a physician; each legion had special units of horses, wagons, carriages and stretcher bearers for that purpose. The Romans' establishment of field hospitals, supported by medics and an ambulance corps, is the first recorded instance of the modern-day principle of immediacy—treating the wounded as quickly and as close to the battlefield as possible. Roman doctors also practiced the second principle of modern military medicine, triage—the separation of casualties according to the severity of their wounds and the evacuation and treatment of the least severely wounded first. Another goal of the Roman medical corps was to salvage and return to duty

Combat in the Roman world, as depicted by the Flemish Baroque painter Peter Paul Rubens in his *The Death of Consul Decio Mus*, above, inflicted horrific injuries on combatants. To repair the damage, Roman surgeons used a range of instruments, at left and right, that would seem familiar to modern military medical personnel.

the fleet. Unlike soldiers, who normally spent their careers in a single legion, physicians transferred among legions, making it possible to ensure medical support wherever the need was greatest.

An assessment of medical knowledge available to Roman military surgeons relies upon the work of Aulus Cornelius Celsus (c. 14–37), himself a former combat physician. His treatise *De Medicina* records almost every aspect of Roman medical practice and is the only complete medical text that has survived from antiquity.

The Romans had no religious strictures against dissection, and the cadavers of criminals, gladiators and

condemned prisoners provided physicians with a knowledge of human anatomy far better than in any other ancient society. Knowledge of the circulatory system, for instance, allowed physicians to locate blood vessels and deal accurately with severed veins and arteries.

This knowledge would have been useless, however, without two other Roman medical innovations: the hemostatic tourniquet to stem massive blood flow, and the arterial surgical clamp to close arteries for suturing. These implements permitted surgeons to stop bleeding and prevent shock, the two primary killers of the wounded in ancient battles. They also allowed Roman surgeons to raise amputation to a high art. Celsus was the first physician to suggest amputation through live tissue and to use a rasp to smooth the bone prior to closure. Archigenes was the first to perform amputation by identifying and tying off major blood vessels before completing the amputation. The ability to amputate gangrenous or otherwise infected limbs saved a great number of lives.

Roman military physicians used a variety of drugs to ease the pain of battlefield surgery. They regularly used lotions made from the opium poppy and henbane. Henbane seeds contain scopolamine, a compound still in use today as a preanesthetic. Pliny the Elder records the use of white mandrake, the root of which yields hyoscyne and atropine, both of which are modern surgical drugs. Though these compounds probably eased pain considerably, as with all surgery until the introduction of anesthesia in 1846, the surgeon's skill and speed remained critical.

Roman surgical skill was reflected in the quality and innovation of their surgical instruments. For one, the arrow extractor, a kind of hollow spoon that eased the removal of embedded arrowheads, was an enormous advance in battlefield surgery. At the heart of the surgeon's *instrumentarium* were the various types of scalpels with replaceable blades. Roman physicians also invented several types of surgical forceps, including those with ring slides and rifled inner faces, allowing the instrument to be locked in place with one hand. Surgeons opened

A. *Mochliskos*

Called by its Greek name, this bone lever was designed to move fractured bones back into position before setting and splinting.

B. *Spathumele*

Doctors used the wide end of this tool to mix medicaments, the narrow end to apply them to a wound.

C. *Ferrum Candens*

These bulbous instruments are cauteries, which doctors heated and used to close wounds.

D. *Hamus*

Doctors used these hooked probes to raise tissue for excision.

F. *Plumbea Fistula*

The spear-shaped device is a hollow tube doctors used to drain a wound while also preventing its closure.

G. *Ostagra*

Doctors used this tong-like device to remove bone fragments from the wound in depressed fractures of the skull.

H. *Sharpening Stones*

Roman military surgeons used such stones to keep their scalpels and other instruments surprisingly sharp

A.

B.

C.

D.

C.

F.

E. *Cochlear*

Doctors used this spoon to cleanse wounds or heat medicaments.

E.

G.

C.

H.



Blunt force trauma to the head, such as that inflicted on the skull at left by some sort of wedge-shaped weapon, would have been virtually impossible for even the best Roman military physician to treat successfully.

carbolic acid method promoted by 19th century English surgeon Joseph Lister. The use of *barbarum*, a powerful antiseptic compound that modern experiments have proven effective for treating deep flesh wounds, also reduced infection rates.

The Roman practice of removing decayed or foreign matter from the wound before and after repeated cleansing helped reduce the rate of tetanus and gangrene, as did loose bandaging, regular bandage changes and the use of surgical clips instead of sutures to close wounds. The use of lint and honey, an old Egyptian wound dressing, was particularly effective, as

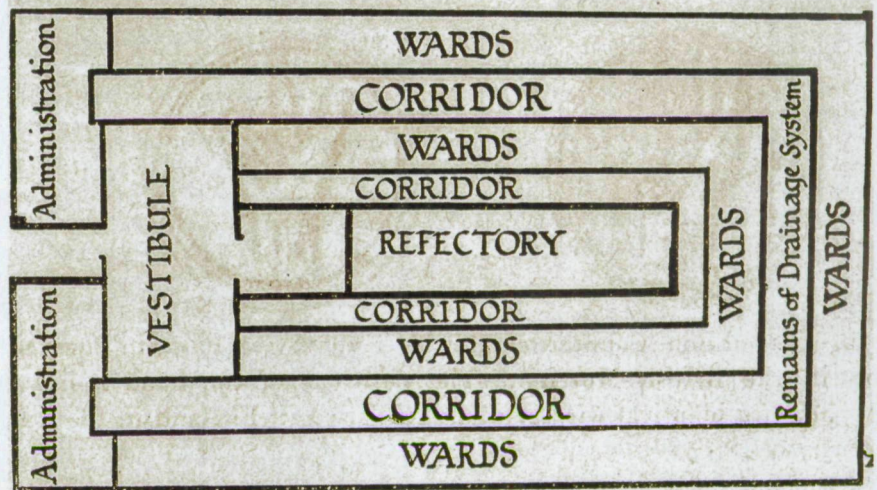
wound edges with another surgical innovation, the retractor, and closed with *fibulae*, something like modern surgical pins. These Roman surgical instruments were far more sophisticated than any available to surgeons in the West until at least the 18th century. Unfortunately, with the empire's collapse, many such innovative devices were lost to medical practice for centuries.

If a physician did manage to save a wounded soldier from blood loss and shock, the next task was to prevent infection. As late as the mid-19th century the mortality rate for those undergoing surgery in hospitals was often higher than 50 percent. Only after the introduction of antiseptics in 1867 did this figure decline. Celsus devoted an entire chapter of his medical manual to infection and was the first physician to describe its clinical symptoms and progress in his famous formula (still taught to medical students today) that infection was recognized by *rubor et tumor cum calore et dolore* ("redness and swelling with heat and pain").

It was standard Roman surgical practice to clean instruments in hot water before use, another important practice the West did not rediscover until the late 19th century. Roman doctors never used the same probe on more than one patient, an important clinical practice that helped avoid surgical contamination. Roman wound washes, especially *acetum* (a form of wine almost turned to vinegar), were more effective than the

tempt that level of surgery again until the 18th century.

The high survival rates for wounded Roman soldiers meant that many then needed short-term and/or convalescent care. During campaigns, before the Romans built permanent forts, physicians provided such care in tents arranged in an open rectangle. When the Romans did build permanent medical facilities, they retained the same configuration. A Roman military hospital was called a *valetudinarium*. Overseeing it was a chief medical officer, the *optio valetudinari*, who reported directly to the legion's *praefectus castrorum*. The plan of these hospitals reflected a level of medical sophistication not seen before in the ancient world and not seen again in the West for centuries. The entrance opened into a large hall lighted by clerestory windows, used as a triage center when dealing with mass casualties. Beyond this



honey was the most powerful and effective known bactericide until the 1928 discovery of penicillin.

Roman medical skills extended even beyond these procedures. Plutarch recorded the surgical skill of Cleanthes, a military surgeon who treated a soldier's lower chest wound by replacing the spilled entrails, stopping the hemorrhage, and stitching and bandaging the wound. Physicians didn't even at-

Permanent Roman military hospitals often shared the same layout, with patient wards sited around the outer walls of a rectangular structure. The floorplan above is based on a Roman hospital found near modern-day Neuss, Germany.

hall was an operating theater, also lighted by multiple windows. Adjacent to the surgical theater was a hearth room for the sterilization of instruments and dressings. The east side of the hospital contained the kitchen and pantries that provided special diets for

convalescing soldiers. The western outer wing contained baths, dressing rooms and lavatories. Three wings comprised the wards, with small cubicles arranged



MUSEO DELLA CIVILTÀ ROMANA, ROME. ITALY/ALUNARI/THE BRIDGEMAN ART LIBRARY INTERNATIONAL

in pairs on either side of a wide corridor—a common floorplan in modern-day hospitals. Small side corridors separated the rooms from the main corridor, reducing noise and lessening the risk of contagion. Hospital staff set aside a few rooms for patients requiring isolation. Other areas housed examination rooms and the hospital mortuary. The roof was designed to provide adequate cooling and ventilation, and a central heating plant insured adequate warmth. Each legion hospital was constructed to accommodate 5 to 10 percent of a legion's strength, or 250 to 500 casualties.

Pedanius Dioscorides, a 1st century Roman military physician, was the most famous pharmacologist of antiquity and the author of *De Materia Medica*, the ancient world's largest compendium of herbal and chemical remedies. The standard work for more than a millennium, it is still read today. Incorporation of most of the "known world" into the Roman Empire expanded the store of clinical knowledge upon which

As depicted in this scene from a section of Trajan's Column, erected in Rome in AD 113, Roman soldiers could depend on receiving medical care even in the midst of battle.

physicians could draw for new drugs and medical techniques. Roman medicine borrowed Indian surgical techniques, including plastic surgery and cataract removal. And so many drugs came from India that Pliny complained about it in his writings.

Roman military medicine was successful because Roman physicians possessed the highest level of medical knowledge and skill in the ancient world. But without the organizational genius to create a permanent medical service within the legions, to train adequate numbers of doctors and other medical personnel to deliver rapid, effective care to the wounded, Roman medical knowledge would have had far less impact on combat survival rates than it did.

Roman pragmatism, unfettered by traditional religious strictures, placed a premium upon medical inventiveness and emphasized what worked. Thus the Romans developed medical innovations that in more conservative cultures would have been impossible. Their military physicians never lost sight of the goal of reaching wounded troops as quickly as possible and saving as many as possible. Anything that hindered that goal was rejected.

Medical science progressed greatly under the Roman army's systematic approach and myriad innovations. But, tragically, with the fall of the empire the great medical legacy that was Rome's vanished into a dark age, not to be rediscovered until the modern era. **MH**

*For further reading Richard A. Gabriel recommends his and Karen S. Metz's two-volume *A History of Military Medicine* (1992), and his forthcoming *Man and Wound in the Ancient World* (Potomac Books, September 2011).*



IMAGES OF COMBAT

FEW OF THE COMBAT PHOTOGRAPHERS WORKING IN VIETNAM UNDERSTOOD THE COUNTRY, ITS PEOPLE AND THE CONFLICT AS WELL AS DID FAMED FRENCH-VIETNAMESE PHOTOJOURNALIST HENRI HUET



THE HARD WAY

Henri Huet was among the most prolific and best-known photojournalists to cover the American war in Vietnam. His haunting images of combat—and of the toll it took on those engaged in it—appeared in *Life* and other top magazines in the United States and Western Europe.

Born in Da Lat, Vietnam, to a French father and Vietnamese mother, Huet was raised in France. He returned to Vietnam in 1949 as a French navy combat photographer and again as a civilian when U.S. forces began arriving in the early 1960s. Working for United Press International and the Associated Press, Huet won the respect of those he photographed by being willing to go where the stories were, regardless of the danger.

On Feb. 10, 1971, an enemy anti-aircraft battery shot down a UH-1 helicopter carrying Huet and three colleagues over Laos. A Pentagon recovery team excavated the crash site in 1998. The remains are interred at the Newseum in Washington, D.C. **MF**

The strains of war show on the face of Sergeant Adolph J. Breecher, above. Opposite, Navy Chaplain John McNamara gives last rights to mortally wounded female photographer Dickey Chapelle, who was killed by shrapnel from a booby trap near Chu Lai on Nov. 4, 1965





Shouldering their duffel bags, troops of the Army's 11th Armored Cavalry Regiment disembark from a Navy landing craft at Vung Tau, South Vietnam, on Sept. 7, 1966. Huei later accompanied elements of the unit into their first contact with the Viet Cong.



A U.S. 1st Infantry Division company commander, standing at center, and his men take cover in a muddy bomb crater while trying to spot Viet Cong snipers during a June 15, 1967, firefight near Phuoc Vinh, northeast of Saigon in War Zone D.



Left: Two 1st Infantry Division soldiers—the lead one a radio operator—sprint across open ground during a firefight in War Zone D. Huet, like most combat photographers, knew he had to be out in front of the troops if he wished to capture dynamic images.



A left-side door gunner in a UH-1 helicopter, top right, brings his .50-caliber M2 Browning machine gun into action against enemy troops operating near a former U.S. special forces camp at Lang Vei, on the South Vietnam–Laotian border, on Feb. 3, 1971.



A South Vietnamese militiaman interrogates a suspected Viet Cong guerrilla, right, following his capture by elements of the U.S. 1st Cavalry Division about 240 miles northeast of Saigon in early December 1965.



In one of Huet's most iconic Vietnam images, the crew of a UH-1 medical evacuation helicopter winches up the body of a 101st Airborne Division soldier killed during a 1966 firefight in the thick jungle of War Zone C along the Cambodian border.



**The grim cost of war:
The bodies of three
paratroopers of the 101st
Airborne Division's 2nd
Battalion, 502nd Infantry,
await evacuation near a
brigade command post
following the Sept. 18, 1965,
Battle of An Ninh, part of
Operation Gibraltar.**

WHEN THE WARRIORS STOOD DOWN

PATTON,
TRUSCOTT AND THE
SECRET INTRIGUES OF POSTWAR EUROPE

BY LUCIAN K. TRUSCOTT IV

On May 8, 1945, the day the Third Reich fell to Allied forces, the devastation in Germany was all but complete. Cities, towns, railroads and ports lay in ruins. Schools, courts, local governments, public services—all had broken down. Reports described residents wandering about in a daze, stooping to collect firewood, idly fingering the splintered remains of their homes, lining up at government offices to ask questions and await answers that would never come. All over Europe, in fact, the scene was much the same. Soon the bomb-pocked

roads would swarm with refugees and displaced persons (DPs) heading back to their home countries.

One class of DPs was different: the Jews who had survived the Holocaust. They had suffered horribly in Nazi concentration camps and had no homes or businesses to which they could return. Everything had been taken from them—their possessions, their dignity, their families. Within months, however, these Jewish survivors of the Holocaust would hear of a place that welcomed them, a place of hope, a place they began to call “the promised land.” Strangely, this place they straggled into—many of them shoeless and clad only in the tattered remains of their concentration camp uniforms—was Bavaria, the birthplace of Nazism. But why would Jewish Holocaust survivors believe they could find hope for a new life in the very place that had consigned them and their families to a pyre of murder and destruction?



When World War II ended in Europe, Jewish DPs—such as the young men above—gravitated to Bavaria en route to Palestine. Generals George Patton and Lucian Truscott, opposite, found the DP issue politically complicated.

The short answer is that Bavaria lay within the American zone of occupation, administered at the top by General of the Army Dwight D. Eisenhower, the man who had commanded the forces that brought Nazism to its knees. In Bavaria the American officer directly in charge, as commander of Third Army, was my grandfather, Lt. Gen. Lucian K. Truscott Jr. The long answer, however, is complicated by some of the usual twists and turns of history—and by some not so usual.

In spring 1997 Professor Emeritus Saul Touster of Brandeis University wrote me a letter, asking me what I knew about my grandfather's background. Touster explained that he had been cleaning out his attic, sorting through a trunk full of his father's papers, when a small pamphlet fell onto the floor. His interest was piqued when he saw that it was a Haggadah for a Seder held in the “Munich Enclave” on



April 15 and 16, 1946. Above the words "Passover Service" was the distinctive red, white and blue "A" crest of the U.S. Third Army.

"I could tell from the format and graphic works that this was not a standard Haggadah, but a work of the Holocaust from within—in short, a survivor's Haggadah," Touster later wrote in his book *A Survivors' Haggadah*. On the pamphlet's inside cover was a dedication from one of his father's friends, a man who had worked with the Hebrew Immigrant Aid Society (HIAS), an organization that helped survivors of the Holocaust find their way to Palestine, soon to be reborn as the state of Israel. Touster surmised the man had picked up the document on a postwar trip to European refugee camps and had given it to his father. Touster knew nothing more—about the Haggadah,

The Third Army Haggadah, top, was written by Yosef Dov Sheinson in Hebrew, Yiddish and English and illustrated with woodcuts by Miklos Adler. It featured traditional text with additional titles for Adler's woodcuts. He entitled the three illustrations at right "Reward for our labor," "Move! Move! They drive us because the liberators are approaching" and "Home! Home?"

about the Seder or about the displaced persons camps.

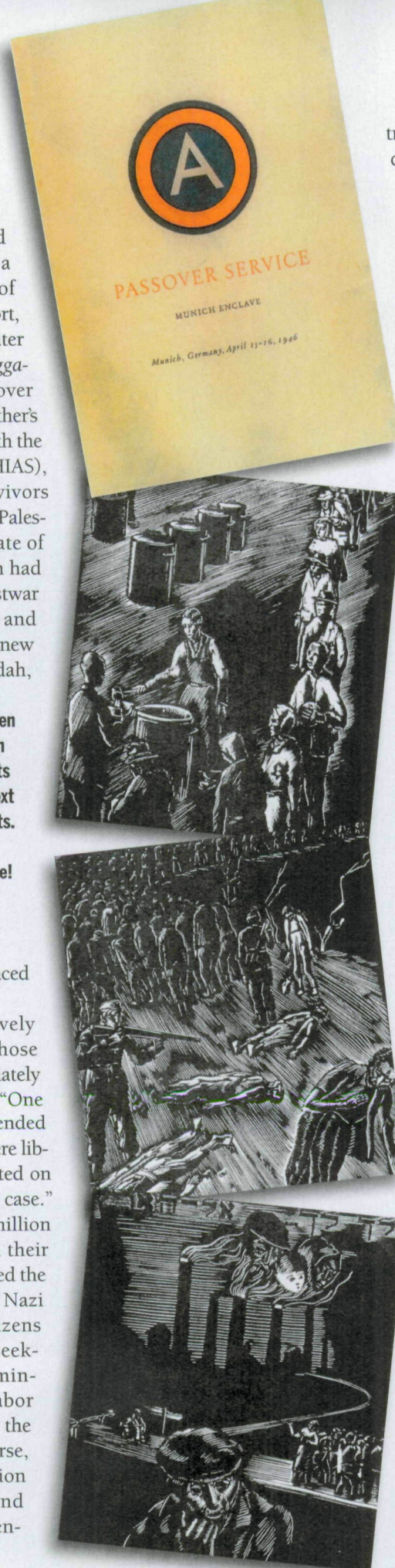
He wasn't alone. Comparatively little has been written about those terrible months in Europe immediately after the war. As Touster wrote: "One might think that the Holocaust ended when the concentration camps were liberated and the Germans capitulated on May 8, 1945. But that is not the case." An estimated 12 million to 20 million Europeans were displaced from their homes during the war. Millions fled the war's various and deadly fronts. Nazi occupiers forcibly removed citizens of some conquered countries, seeking to make them easier to administer. They forced many into labor camps across Europe to slave for the German war effort. Then, of course, there were the estimated 10 million Jews, Gypsies, homosexuals and political prisoners sent to concen-

tration camps to be worked and starved to death or murdered outright.

By spring 1946 all but some 1.2 million refugees had returned to their countries of origin. Of those, 900,000 remained in DP camps in Germany and Austria, about 200,000 of them Jewish survivors of the Holocaust. All the Jewish DP camps were in Bavaria, under the supervision of Third Army, commanded by my grandfather. Indeed, the first sentence of the survivors' Haggadah read: "And the khaki-clad sons of Israel commanded by Lt. Gen. Truscott gathered together, as was the custom in Israel, to celebrate the Passover festival."

I grew up with perhaps a better understanding of the horrors of the Holocaust than most American children. In the summers, when brother Frank and I visited our grandparents in the Northern Virginia suburbs of Washington D.C., we would sit in his library, leafing through two large photo albums that the Third and Fifth army staffs had presented to our grandfather after the war. The Third Army album contained numerous photos of the Dachau and Kaufering-Landsberg concentration camps, many of which came from Nazi files. The horrors of those camps were on full view in that album, and they were photos my brother and I would never forget.

Even though I had very strong memories of those days, I knew nothing of Truscott's time as postwar Third Army commander. His World War II memoir, *Command Missions*, devotes a single 24-page chapter to that period. It is virtually an afterthought at the end of a 556-page epic that covers everything from his early assignment to Great Britain—when he formed and trained the 1st Ranger Battalion—to his 1946 departure from Germany after suffering a heart attack. According to *Command Missions*, his tenure with Third Army did not appear to be something of which he was particularly proud. The only other thing I knew about that time came from my grandmother, who after my grandfather's





UNITED STATES HOLOCAUST MEMORIAL MUSEUM. COURTESY OF ALEXANDER WHITE

death in 1965 told me he'd considered his relief of old friend General George Patton as Third Army commander the saddest day in his life. It was not until Touster contacted me that I grew curious about the role Truscott played in the administration of the Bavarian DP camps, particularly those that housed Jewish survivors of the Holocaust.

That story starts with Eisenhower's battle with Patton over the latter's policies during the early months of the Allied occupation. As military governor of Germany, Eisenhower had ordered that all areas occupied by American forces were to be thoroughly "denazified," removing Nazi party members and others affiliated with or sympathetic to Hitler from power in all state and local governments and businesses. Denazification ramped up quickly everywhere in Germany—except Bavaria, where Patton had appointed known Nazi Friedrich Schaeffer as the first minister-president of Bavaria. During a September 1945 press conference Patton said the military government "would get better results if it employed more former members of the Nazi Party in administrative jobs." In a subsequent interview with *The New York Times* he dismissed the whole denazification campaign, saying, "The Nazi thing is just like a Democrat and Republican election fight." The United Nations Relief and Rehabilitation Administration (UNRRA) also noted Patton's reluctance to denazify Bavaria.

Jewish DPs gather in Munich for a Seder organized by an Army chaplain, one of several rabbis flown in from the United States at Truscott's order. Most of the Seder participants had to return to their camps after the event.

A second issue concerned conditions within the DP camps under Patton's control. Jewish-American agencies and the American press reported that conditions in Jewish DP camps were little better than in Nazi concentration camps, with Jewish survivors confined

in the same spaces as their former guards. In June 1945, at the insistence of the State Department and Treasury Secretary Henry Morgenthau Jr., President Harry S. Truman appointed a commission to investigate the DP camps. The final report of the Harrison Commission—named after its chairman, professor Earl G. Harrison of the University of Pennsylvania Law School—issued that September, described deplorable conditions in the camps and concluded: "As matters now stand, we appear to be treating the Jews as the Nazis treated them except that we do not exterminate them."

Eisenhower quickly ordered acceleration of the denazification campaign and improvement of conditions in all DP

“Jewish-American agencies and the American press reported that conditions in Jewish DP camps were little better than in Nazi concentration camps”

camps. He further directed that Jews be removed from confinement in camps with other displaced persons, placed in camps exclusive to themselves, and provided increased rations and greatly improved conditions. Eisenhower had these orders transmitted to Patton on August 27 and again on September 12, along with a command that Patton was personally to inspect the camps and report back. Patton either refused or ignored Eisenhower's orders that German properties and foodstuffs be seized and turned over to the care and feeding of victims of the concentration camps. He questioned why he should seize, without due process, the businesses and properties of Bavarian bankers and industrialists, regardless of whether they were Nazis or had employed slave labor during the war.

Adler's titles echoed traditional Haggadah verses. Here, from top to bottom: "We were slaves of Pharaoh in Egypt" became "We dug trenches in an unending circle"; "And they afflicted us and laid upon us hard bondage" became "We were clearing rubble"; "And they afflicted the children of Israel with hard bondage" became "We were hauling logs"; and the Haggadah verse "While Pharaoh decreed death only for the male children, Laban sought to uproot all" became the simple yet horrific "Selection."

Perhaps explaining to himself why he had such a recalcitrant attitude about Eisenhower's policies, Patton recorded in his diary that the commission appointed by Truman appeared to believe "that the displaced person is a human being, which he is not, and this applies particularly to the Jews, who are lower than animals."

By late September 1945 Eisenhower was sufficiently displeased with Patton's insubordination that he summoned Truscott to Frankfurt and ordered him to relieve Patton of command of Third Army. Truscott protested that he and Patton had served together for many years and were close friends. His protests fell on deaf ears, and he finally concluded that Patton would probably prefer to be relieved by a friend than by "someone who might

be less sympathetic." On Oct. 7, 1945, in a formal ceremony at Third Army headquarters in Bad Tölz, Truscott took command of Third Army from his old friend, who departed the next day on his private train for Bad Nauheim, where he was to take command of 15th Army, a "paper army" engaged in evaluating the lessons learned from the war and making recommendations for future wars. Within two months Patton would die of injuries suffered when his staff car collided with an Army truck near Mannheim.

The story of Truscott's time as Third Army commander and his administration of the DP camps is a complex one, but he began his command unambiguously at his first press conference when he issued the following statement: "I have left too many white crosses across North Africa, Italy and France, and I have seen too many young men wounded and maimed not to be in complete sympathy with any policy that designs to eradicate, root and branch, the evil force, Nazism, that loosed this holocaust on the world." To those survivors who now occupied the camps over which Truscott had command, his words must have come as welcome harbingers of change. But few knew then, as now, what was happening in the Bavarian DP camps the following year.

Truscott got right down to business. In *Command Missions* he wrote: "In one of my first moves, I undertook to inspect all troop installations and displaced persons camps in the Army area.... Full use was made of German *kasernes*, or permanent military posts, labor camps, hotels, schools, other public buildings and private dwellings. Scores of camps, varying in size from those housing a hundred or so to thousands of persons, were scattered all over Bavaria.... In the weeks that followed, I visited scores of camps, and saw several hundred thousand displaced persons in every part of Bavar-





WISCONSIN HISTORICAL SOCIETY 58285

ia.” As a result of these inspections, he ordered that Army rabbis be flown from the United States to Germany to establish Sabbath services in Jewish DP camps, that Kosher food be made available, and that all the camps be made habitable. His aide’s diary for Nov. 5,

1945, reads: “Drive to Traunstein, arriving at 1145. Two camps here...one in a Catholic seminary and the other in an old SS hospital. Trouble in the first with the Catholic Church, who want the thing back, and other is disorganized and dirty. Army commander (Truscott) takes time out after the inspection to chew both [camp commanders].”

It’s important to understand that by fall 1945 Truscott had been continuously at war since he accompanied the 1st Ranger Battalion on the Dieppe Raid in August 1942. Over a period of three years he commanded, successively, the 9th Regimental Combat Team in North Africa; the 3rd Infantry Division in Italy; and VI Corps from the Anzio beachhead to the liberation of Rome. Truscott then commanded the amphibious landing at Marseille, driving on—in less than a month—to destroy a German army, take 100,000 prisoners and advance 450 miles to link up near Strasbourg with Allied units advancing east from Normandy. He was then given command of Fifth Army, with which he defeated *Generalfeldmarschall* Albert Kesselring’s army in

In 1946 Army Chief of Staff General Dwight Eisenhower—the man who a year earlier had relieved Patton from command of the Third Army—toured the Neu Freimann DP camp because of complaints by Jews housed there.

northern Italy and took the surrender of a half-million German soldiers on a single day just before the end of the war.

All that time Truscott had no one looking over his shoulder. For more than three years he had allowed only one correspondent, from *Life*, to accompany his

headquarters. As long as Truscott was killing Germans and taking mile after bloody mile of the territory they held, Eisenhower interrupted him only to promote him and assign him to ever-larger commands with ever-larger missions.

But in Bavaria the entire world was watching over not one but both of Truscott’s shoulders. There were continual press conferences, invasions of reporters from newspapers nationwide, visits from congressmen and senators and members of various blue-ribbon commissions and consultations with UNRRA representatives. As he wrote to wife Sarah,

“[Truscott] ordered Army rabbis be flown to Germany to establish Sabbath services in Jewish DP camps, that Kosher food be made available, and that camps be made habitable.”

"There's a job to be done here, and someone has to do it, and as I see it, it's part of my contribution." A few weeks later he complained, "I'm a fighting man, not a politician."

He wrote almost daily to Sarah, each letter beginning with the salutation, "Beloved wife," and his letters—collected at the Virginia Military Institute's Marshall Library—are full of complaints about scrambled and contradictory policies and the meddling of newly arrived civilians who, as he saw it, simply didn't know the lay of the land. Once he wrote, "This job is about like trying to squeeze a handful of quicksilver into a ball."

Above all, in virtually every letter he wrote from Bavaria between October 1945 and summer 1946, he complained about his problems with Jewish DPs. They were a force unto themselves, he noted. Among the hundreds of thousands of DPs still in Bavaria, Jews alone were not required to have identity or travel papers in order to move around the area.

They were free to move from one camp to another without official notice or permission, meaning Third Army could not prevent overcrowding if the DPs chose to empty out one camp and fill up another. And shortages occurred when DPs traded, say, beds for blankets, or pillows for shoes or musical instruments or anything else the DPs deemed valuable. But such explanations rarely satisfied visiting congressmen critical of the conditions they witnessed in some camps; someone in authority must be held accountable for overcrowding and shortages. That someone was Truscott, and he resented it.

The biggest problem he faced was continual overcrowding of certain camps such as Landsberg, despite every effort to convince Jewish DPs it was in their interest to stay in



The British-run Poppendorf camp in Austria held many DPs who had fled from U.S. camps in Bavaria, only to be caught attempting to enter Palestine.

less-crowded and better-equipped camps. Truscott repeatedly complained to Sarah that although he, as Third Army commander, could practically order the rain to fall and the snow to melt, he couldn't order Jewish DPs to stop crowding into the southernmost camps in the region. Such comments in his letters like, "I wish I could tell you what's really going on here," and, "There are so many things I wish I could

say that I cannot put on paper," indicate that something big was going on behind the scenes in Bavaria in 1945 and 1946, something secret. But the war was over, the enemy had been defeated and classified battle plans had been filed away. What could that secret be?

In one of his letters home Truscott wrote that Jewish DPs were continuing to "infiltrate" into Bavaria from Eastern Europe at a rate of about 1,000 per week. I've spoken to some of those "infiltrators," including Samuel Bak, today a distinguished artist. He was a boy of 12 in 1945 when he made the arduous journey hundreds of miles from Poland to Bavaria. He did so because, as he explained, "To us the Third Army had created a promised land in Bavaria, where you would be fed and housed and allowed to worship and be treated like human beings."

In a Feb. 10, 1946, letter to wife Sarah, Truscott finally dropped his guard: "Then there are the Jews," he wrote in a burst of frustration. "They are bound and determined to force the Palestine

issue and will stop at nothing to keep themselves on the front pages."

Of course after years of suffering and death at the hands of the Nazis they wanted to be on the front page. Of course these persons displaced from countries across Europe now wanted a homeland. But not until eight years later, when *Command Missions* was published, was Truscott able to say outright what he'd been hinting. "The Jews carried on a program of clandestine emigration to Palestine, exfiltrating groups from Bavaria to Italy or southern France, where they embarked on ships chartered by some of the Jewish committees." Characteristically, he noted that for Third Army "this illegal traffic only served to complicate matters."

The Jewish DP camps were run by committees aided by the American Jewish Joint Distribution Committee, all forming a sort of underground railroad. Truscott knew all along why Landsberg and the other DP camps near Munich were overcrowded with Jews who refused to move to camps with far more room. These were among the southernmost camps, closest to the borders with Austria and France, through which the underground railroad ran to the ports of Marseille and Genoa. Why did the Jewish DPs refuse to move? Because the camp committees were busy forming teams of survivors trained and instructed, one after another, that on a specified night they were to travel three kilometers down a certain road, for instance, where they would meet a truck and embark on the first leg of a

“In one of his letters home Truscott wrote that Jewish DPs were continuing to “infiltrate” into Bavaria from Eastern Europe at a rate of about 1,000 per week”



UNITED STATES HOLOCAUST MEMORIAL MUSEUM/MUSEUM OF JEWISH HERITAGE/CENTER FOR HOLOCAUST STUDIES, COURTESY OF LIEB SULTANIK

journey that would end in Palestine. That wouldn't have been possible for Jewish DPs had they moved as advised to camps in central Germany.

The state of Israel was taking form as much in the overcrowded former SS barracks of southern Germany as in the arid sands of Palestine. Why was this such a big secret that Truscott couldn't share it in a private letter to his wife? Because it flew in the face of agreements made between the United States, Great Britain and the Soviet Union at the Yalta Conference regarding the repatriation of foreign nationals to their native lands. The United States and Britain had agreed to limit Jewish emigration to Palestine, and Washington had set its own limits on Jewish immigration. What was the rationale behind these seemingly contradictory policies? Why were some DP camp refugees, such as Poles and Russians, held behind barbed wire and in some cases forcibly repatriated, while Jewish DPs were allowed to travel freely between camps so they could be "exfiltrated" to Palestine?

It's possible the American high command had simply decided to be kind to the Holocaust survivors, but there is more to it than that. After all, nations typically operate in their own "enlightened self-interest," not out of some sense of goodness or moral duty to others. An answer surfaces two years later: Truman was the first national leader to recognize the state of Israel, less than 15 minutes after it declared independence in 1948. That's about as much time as it took for some White House clerk to carry the cable from Tel Aviv down the hall to the Oval Office and

The British government's restrictions on Jewish immigration to Palestine—and the forced repatriation to Europe of Jews attempting to run the British blockade—sparked largely peaceful protests, such as this one in Munich.

call in a few correspondents to make the official announcement.

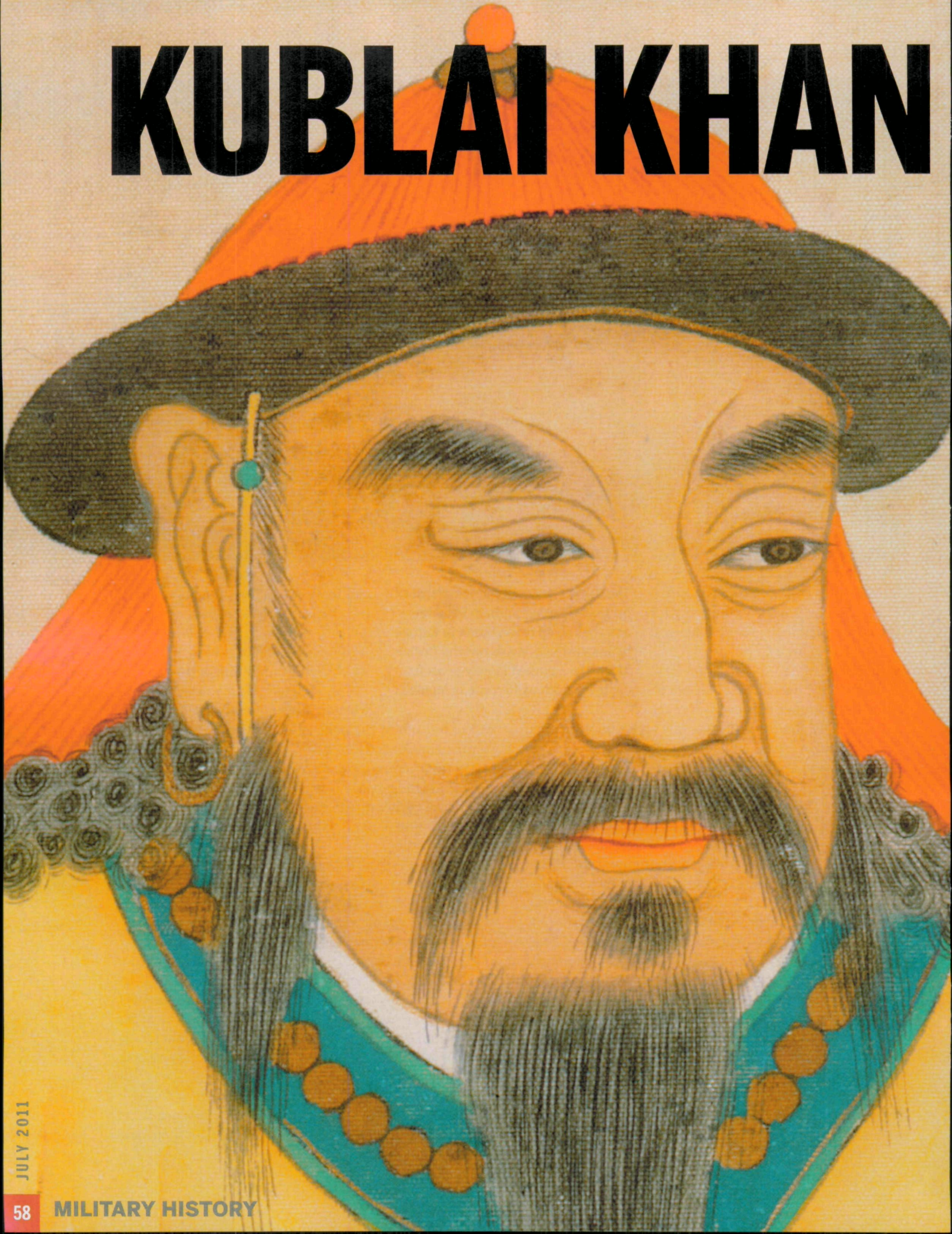
On the title page of the survivor's Haggadah, in a kind of artistic code, is graphic evidence of what was transpiring in the DP camps:

At the bottom of the page is an etching of a Holocaust victim being loaded into a cart between the grim barracks of a concentration camp. Etchings of barbed wire run up either side of the page toward palm-lined desert roads, which lead farther up the page to a sunrise over Jerusalem. It is an etching of the Exodus—from bondage to the true Promised Land.

In spring 1946 the DP camps launched an effort to print a survivors' Talmud, following the printing of the survivors' Haggadah. Two years later they finally ran off 500 copies in Heidelberg on the very presses owned by the publisher of Adolf Hitler's *Mein Kampf*. This was not happenstance. During his command of Third Army, Truscott occupied a villa on the shores of Lake Tegernsee, just outside Bad Tölz. The Allies had seized the villa from the publisher of *Mein Kampf*, and Truscott ordered that the presses and the paper used to print Hitler's two-volume book—the blueprint for the terror he later unleashed on the world—be made available for the printing of the survivors' Talmud. **(MH)**

For further reading Lucian K. Truscott IV recommends his grandfather Lucian K. Truscott Jr.'s World War II memoir *Command Missions: A Personal Story*.

KUBLAI KHAN



VS. KAMIKAZE

WHEN THE LEGENDARY MONGOL CONQUEROR
SOUGHT TO INVADE JAPAN, HE DIDN'T EXPECT DEFEAT
TO ARRIVE WITH THE WIND BY JAMES P. DELGADO

For more than a decade maritime archaeologists working in the murky waters off Takashima Island on Japan's Kyushu coast have raised shattered ships' timbers, armament, provisions, and the remains of lost soldiers and sailors associated with one of history's most significant naval invasions—Kublai Khan's 1281 assault on Japan.

The invasion fleet comprised thousands of ships and hundreds of thousands of men—an operation not again equaled until the 1944 Allied landings in Normandy. The invasion is perhaps better known, however, for the fleet's destruction by a legendary typhoon known as *kamikaze* (Japanese for "divine wind"). The legend of the *kamikaze* resonated again in the 20th century, when a desperate Japan invoked the term as a *tokko*, or suicide tactic, at the end of the Pacific War in 1944 and 1945.

The search for the remains of Kublai Khan's lost fleet began in

1980 when Torao Mozai, an engineering professor and veteran of the World War II Imperial Japanese Navy, set out to learn whether the story that had inspired his shipmates and his nation was a myth.

Mozai knew of the recorded invasions by Kublai Khan in 1274 and 1281. Marco Polo, a visitor at the khan's court, had written of Kublai's failed efforts to conquer Japan and

how the khan's commanders had blamed storms for their failure. Mozai also knew of Japan's enduring legend of the invasions, and that shrines in Fukuoka on Hakata Bay, site of one of the battles, commemorate Japan's god-sent victory. At Tokyo's Museum of the Imperial Collections he

found a late 13th century scroll that depicts samurai warrior Takezaki Suenaga in combat both on the beach and aboard the invading Mongols' ships. Whether the legend and the scroll were accurate was another matter. Mozai was determined to find Kublai Khan's sunken fleet and, through careful study of the physical evidence, determine what had actually happened.

Mozai started his search in the early 1980s with the Kyushu fishermen, who,

Born in 1215, Kublai Khan, left, was a grandson of Genghis Khan. The 1259 death of his older brother, Möngke Kahn, sparked a four-year battle for the throne between Kublai and a younger brother. After winning that struggle, Kublai set out to conquer Korea, China and Japan.

AKG IMAGES



MARY EVANS PICTURE LIBRARY; BELOW: JAMES P. DELGADO

like their ancestors before them, had hauled artifacts to the surface in their nets. Swords, pots, a bronze Buddha and an inscribed bronze seal that had belonged to one of the khan's generals all appeared to be remnants of the invading fleet, and they all pointed to the waters of Imari Bay, south of Fukuoka and off the island of Takashima, as the site where Kublai's lost fleet littered the seafloor. Using sonar, Mozai pinpointed areas where he believed the Mongol ships lay beneath a thick layer of mud.

Mozai's survey paved the way for more extensive investigations by a team of Japanese maritime archaeologists led by Kenzo Hayashida, who in the 1990s began excavating the seafloor to find the broken ships. The dig continued through the early 2000s, as thousands of artifacts emerged from their long burial, providing both a tangible link to a legendary event and insights into the invading forces, their ships and possible reasons for the khan's defeat.



Shipborne samurai assault a Mongol vessel, top, during Kublai Khan's second attempt to invade Japan. Typhoons quashed both invasions. Timbers from the sunken Mongol ships, above, litter the seafloor of Imari Bay off Takashima Island.

The story of Kublai Khan's lost fleet begins more than a decade before Mongol ships first sailed for Japan, when Kublai gained the mantle of great khan of the Mongols and continued the ambitious invasions launched by his famous grandfather, Genghis Khan (c. 1162–1227),

to extend Mongol power across the known world.

Under Genghis' leadership the Mongols surged out of the Eurasian steppes to forge the largest contiguous empire the world has ever seen. Genghis consolidated the Mongols, long a disparate and feuding group of clans of horsemen, into a formidable cavalry that launched a series of bold strikes west into the Middle East and then into Europe. By 1242 Mongol invaders stood at the gates of Western Europe after occupying much of Russia and sweeping into Hungary. Fierce resistance and their own disorder eventually led them to retreat not only from Europe but also from the Middle East; the Egyptian Mamluks halted the Mongol advance south in 1260 and retook Mongol-occupied Mesopotamia. The Mongols then turned their attention east, subjugating Korea, northern China and, finally, the Sung empire of southern China.

The Sung Dynasty, then the world's mightiest naval power, had battled northern invaders for centuries. Trad-

ing regularly with Asia, Indonesia, India and the Arabs, it was a wealthy state but weakened by corruption and internal dissension. When Kublai gained the Mongol throne in 1260, he resumed the campaign against the Sung that his grandfather, father, uncles and cousins had begun. Kublai succeeded in conquering China by swelling his ranks with Sung defectors and adding Sung ships to a fleet he was amassing to invade China's rivers and coasts. Adaptable and quick to assimilate his enemy's technology and strengths, Kublai had by 1279 defeated the last Sung emperor. His new empire, centered in China as the Yuan Dynasty, now controlled the largest country on earth.

Expansion into other regions of the Far East was possible, but only through naval action. Thus Kublai turned to the large fleet he had used to defeat the Sung. He also wisely continued the Sung policy of expansive maritime trade, using his navy as both a tool of trade and a means of Mongol expansion.

The shogunate of Japan was the khan's first overseas target.

The Japanese were regular trading partners of the Sung and, therefore, no strangers to the Mongols. Even as he waged his war against the Chinese, Kublai Khan sent envoys to the Japanese in 1266 and 1268 to demand their subservience—and to cut off vital trade that was filling the Sung court's coffers. The *bakufu*, or Japanese military dictatorship, ignored the Mongol demands. Kublai's response was to order his vassals in the subjugated Korean state, Koryo, to build a vast fleet of some 900 ships and prepare to invade Japan. For centuries a lucrative trade route, the relatively narrow Korea Strait—spanning some 120 miles between Koryo and Japan's Kyushu coast—would now be a highway of war.

The khan's fleet departed Koryo on Oct. 3, 1274, with 23,000 Mongol, Chinese and Korean soldiers and 7,000 sailors aboard. Two days later the force overwhelmed the 80-man

KUBLAI KHAN'S 1281 INVASION

Kublai Khan had launched his 1274 assault on Japan from ports in what is now southeastern Korea. For his second invasion he chose to use two fleets: the Eastern Route Division sailed from the same Korean ports as had the 1274 fleet, while the Chiang-nan Division set out from China. The fleets carried a total of 140,000 Chinese, Korean and Mongol warriors. They joined forces at Hirado, then struck Takashima.





THE ART ARCHIVE/BRITISH LIBRARY; BELOW: JAMES P. DELGADO

island garrison of Tsushima, in the middle of the strait. Next to fall was the island garrison of Iki, closer to the Japanese coast. The fleet attacked the coastal port of Hirado on October 14, then moved north to land at various points along Hakata Bay, near modern-day Fukuoka. Thanks to spies in Koryo, the Japanese had been forewarned of the Mongol advance and had rushed groups of samurai and their retainers to Hakata Bay. Japanese historians estimate that some 6,000 defenders stood ready to fight the much larger invading army.

The battle was unequal in numbers and in tactics. The Mongols advanced en masse and fought as a unit, while the samurai, true to their code, ventured out to fight individual duels. In a week of fighting the Japanese slowly gave way. By October 20 the Japanese had retreated from the beach, falling back 10 miles to an ancient abandoned fortress at Mizuki.

Things were not all going the khan's way, however. Japanese reinforcements were pouring in from the surrounding



On a Japanese scroll, top, painted four centuries after the battle, mounted samurai retreat before the advancing Mongols during Kublai Khan's 1281 attempted invasion of Japan. Among the relics recovered from the battle sites was the skull fragment above.

countryside, the senior Mongol commander was wounded, and sailors aboard the ships were wary of an incoming storm that threatened the fleet in its crowded anchorage along the rocky shores of Hakata Bay. Deciding a strategic withdrawal was in order, the invaders burned the town of Hakata, reboarded their ships and departed.

The storm grounded some 50 ships of the Mongol fleet, which the Japanese then boarded, executing the crews. But the loss to the khan was not catastrophic, and he had succeeded in cutting trade between Japan and Sung China.

Alarmed at their near defeat, the *bakufu* ordered defenses built at Hakata Bay and troops massed to meet another invasion. Laborers erected a 25-mile-long, 5- to 9-foot-high stone wall, set back some 150 feet from the beach, and the samurai organized their vassals into a compulsory defense force. The *bakufu* also requisitioned small fishing and trading vessels to build a coastal naval force. Angered at the reticence of some samurai to engage the Mongols in battle, the *bakufu* replaced many of the feudal lords around Hakata Bay with samurai allied with the ruling shogun.

Despite his initial setback, Kublai Khan did not forget Japan. In April 1275 he sent an envoy to Nagato demanding a Japanese capitulation. The *bakufu* let the envoy and

his entourage cool their heels for four months, then summoned them to the shogunal seat of Kamakura for summary execution. Kublai renewed his appeal for surrender in June 1279, even as the last remnants of the Sung dynasty crumbled before the Mongol onslaught in China. But Mongol power obviously still did not impress the *bakufu*, who this time executed the khan's emissaries on the beach at Hakata as they landed to negotiate. Furious, Kublai ordered Koryo to build a new fleet of 900 ships and assemble an invasion force of 40,000 Mongol and Korean warriors and 17,000 sailors. In China the khan assembled an additional fleet of nearly 3,500 ships and an invasion force of 100,000 Chinese warriors.

Kublai ordered the two fleets—the Koryo Eastern Route Division and Chinese Chiang-nan Division—to rendezvous at Iki and coordinate their attack. The Eastern Route Division sailed first on May 3, 1281, retaking Iki on June 10. But within a week, without waiting for the arrival of the Chiang-nan Division, the impatient Eastern Route commanders sailed for Hakata Bay. The stone defensive wall thwarted a landing, so the troops instead occupied Shika Island in the middle of the bay. The Japanese used small coastal-defense vessels to harass the Mongol fleet, slipping armed samurai aboard the enemy ships to kill their crews and soldiers. Badly mauled, the Eastern Route Division retreated to Iki, the Japanese in hot pursuit.

The Chiang-nan Division finally sailed from China in mid-June, joining forces with the battered Eastern Route Division at Hirado. In an attempt to bypass the defenses at Hakata Bay, the combined Mongol fleet struck the garrison on the small island of Takashima in Imari Bay, some 30 miles south of Hakata, and then landed its invasion force. The Japanese were waiting ashore, and a two-week battle raged across the rugged countryside. Meanwhile, the Mongol crews, in preparation for the inevitable assault by Japanese coastal craft, chained their ships together to form a massive float-

“The Japanese were waiting on the beach, and a two-week battle ensued through the rugged countryside”

ing fortress, complete with a planked walkway. The Japanese vessels—including fire ships—did strike the floating Mongol fortress, but to little effect. The principal fight was ashore, where losses on both sides mounted.

As the Mongols prepared to launch their final offensive, legend has it Emperor Kameyama—by tradition the descendant of gods and a god himself—beseeched his ancestors for Japan's deliverance. His prayer was apparently answered

on July 30, when a massive storm smashed into the Mongol ships. Legends describe the *kamikaze* as “a green dragon” that “raised its head from the waves” as “sulfurous flames filled the firmament.” Driving rain, high winds and storm-driven waves lashed the sprawling Mongol fleet as it tried to flee through the narrow harbor entrance.

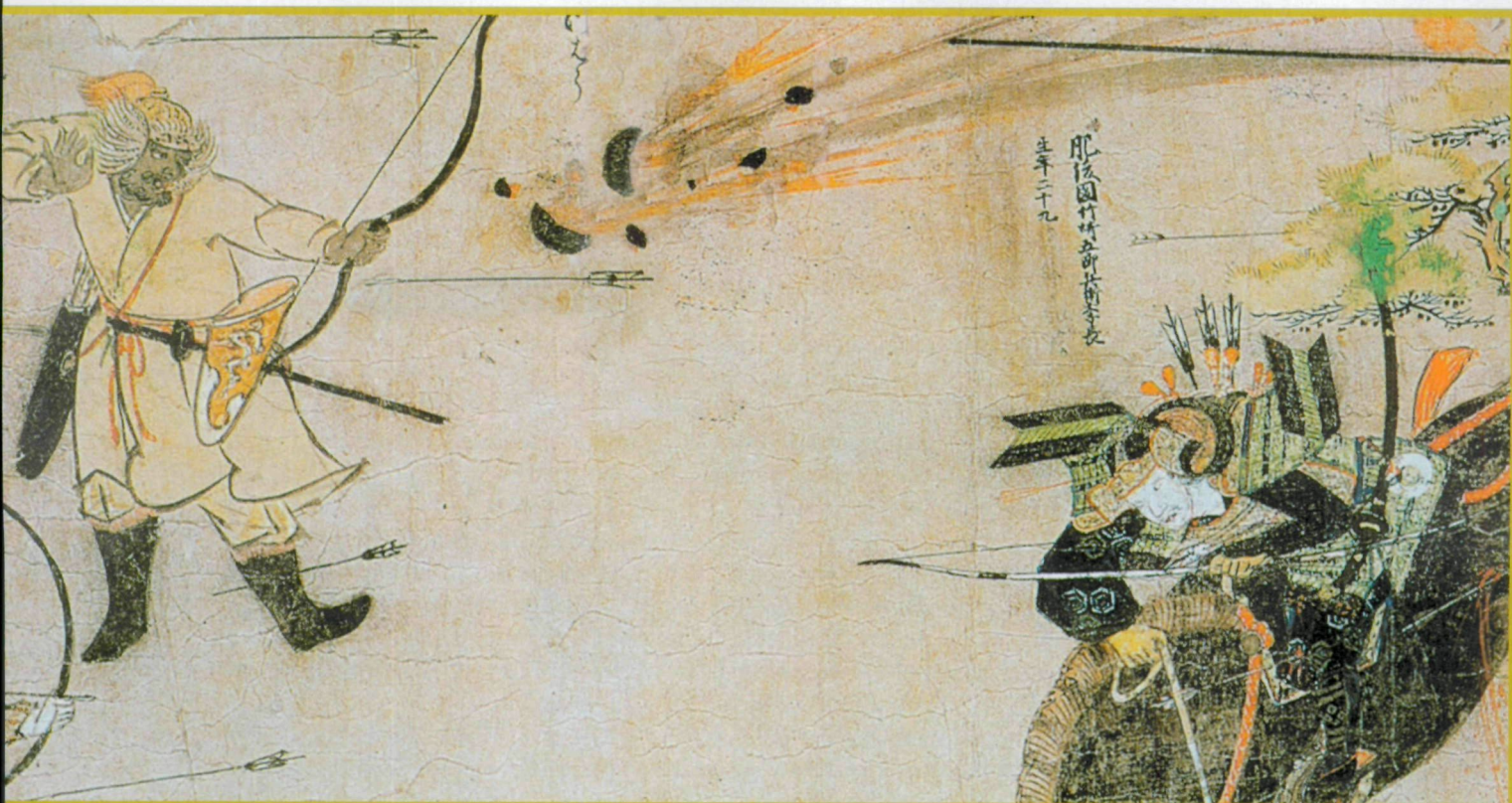
As the khan's visitor Marco Polo later related the story:

Such a gale was blowing from the north that the troops declared that, if they did not get away, all their ships would be wrecked. So they all embarked and left the island and put out to sea... When they had sailed about four miles, the gale began to freshen, and there was such a crowd of ships that many of them were smashed by colliding with one another. Those that were not jammed together with others but had enough sea room escaped shipwreck. Those that succeeded



A Mongol invader loses his head in this detail from a scroll commissioned by samurai Takezaki Suenaga to glorify his deeds during both Mongol invasions.

DETAIL OF THE MONO SHURAI KOTOBA, COMMISSIONED BY SAMURAI TAKEZAKI SUENAGA, 1293/THE MUSEUM OF THE IMPERIAL COLLECTIONS, SANJOMARU SHOTOKUEN



TOP: DETAIL OF THE MONO SHIRAI EKI TOBIRA, COMMISSIONED BY SAMURAI TAKEZAKI SUEENAGA, 1285; THE MUSEUM OF THE IMPERIAL COLLECTIONS, SANNO-MARU SHOKOKAN. BELOW: ARIUA AND THE MATSUURA BOARD OF EDUCATION

in clearing this island made good their escape. The others who failed to get clear were driven aground by the gale.

According to legend, the *kami-kaze* sank nearly 4,000 Mongol ships and drowned some 100,000 men. The exultant samurai dragged exhausted survivors ashore and killed them. They then rounded up the stranded Mongol invaders and executed them. The shores were littered with debris and bodies. According to Japanese accounts, the entrance to Imari Bay was so clogged that “a person could walk across from one point of land to another on a mass of wreckage.”

Kublai Khan considered a third invasion of Japan but dropped his plans in favor of a sea and land invasion of Vietnam and a military mission to Java. The story of the khan’s invasion of Japan, now firmly part of the island nation’s history and legend, lasted through the centuries and 700 years later inspired the archaeological quest to learn exactly what had happened in 1274 and 1281.



A Japanese defender is about to fall victim to a ceramic bomb, top, a Chinese-made weapon used to great effect by the Mongols. Examples of such bombs, above, recovered at the Takashima battle site were filled with gunpowder and metal shrapnel.

The artifacts divers have pulled from the seafloor since the 1980s speak both to the khan’s preparations—the types of ships he deployed, the composition of his forces, the arms they carried—and to the reasons for their defeat.

Japanese maritime archaeologists working in 40 feet of water off Takashima’s Kozaki Harbor dug through 20 feet of gelatinous mud to reach the seabed of 700 years ago. There, a

jigsaw puzzle of broken timbers, ceramics, rust-encrusted iron and other finds required painstaking mapping and recovery, particularly since the centuries of immersion had rendered much of the wood the consistency of cheese.

The wide dispersion of the finds suggested a violent end to the fleet, perhaps through a storm surge. What was unclear to Kenzo Hayashida was whether the jumbled wreckage was the result of one massive storm or several centuries of storms. His team eventually concluded that a single storm had indeed wrecked the fleet, but that the level of destruction was due to subsequent storms on a coast frequently lashed by powerful seasonal typhoons. They also noted fire damage to certain timbers, suggesting that at least some of the ships had burned before sinking.

The broken bones of a soldier amid what appear to be his weapons, armor and personal possessions offer compelling evidence as to a sudden loss. Not much was left of the soldier—just the top of his skull and a hip. Fragments of red leather in the mud repre-

Archaeologists can now offer a reconstruction of the failed invasion that separates fact from legend

sent the remains of a suit of lamellar armor, and a nearby helmet may well be his. Divers also found a sword, two bundles of iron crossbow bolts and a lone rice bowl. Written on the latter's base, in the time-honored tradition of soldiers and sailors, were the name WANG and the rank COMMANDER OF 100. Wang is a common surname even today in southern coastal China, and it indicates that this centurion in Kublai Khan's army was a subjugated Chinese warrior incorporated into the Mongol forces.

Most of the armament at the site is from China, as are the ships, according to analyses of the surviving timbers. The archaeologists also traced the large oak-and-granite anchors to China. In all, Hayashida's team found that 99 percent of the recovered artifacts were of Chinese origin; the remaining 1 percent could indeed be Mongol.

Among the most surprising finds was a series of ceramic bombs of a type historians had not thought existed at the time. One panel of the painted scroll of samurai Takezaki Suenaga depicts him falling from his horse, both rider and mount bleeding, as an aerial bomb explodes above him. Some historians had suggested the bomb was a later addition, and that Suenaga was in fact wounded by a flight of arrows. But archaeologists at Kozaki recovered several fragments of such bombs, known as *tetsuhau*, as well as intact examples. X-rays revealed these lethal Chinese-made weapons to be loaded with gunpowder and bits of metal shrapnel.

Randall Sasaki, a Texas A&M University graduate student who joined Hayashida's team, made a detailed study of the ships and digitally reconstructed the Chinese-built fleet of troop transports and supply ships that merged with Korean-made shallow-draft landing craft to assault Japan's shores in 1281. He discovered that the fleet had been hastily assembled, with some vessels showing their age and others in poor repair. But Sasaki also found ships that were the epitome of exceptional Chinese naval construction, many likely veterans of the Sung

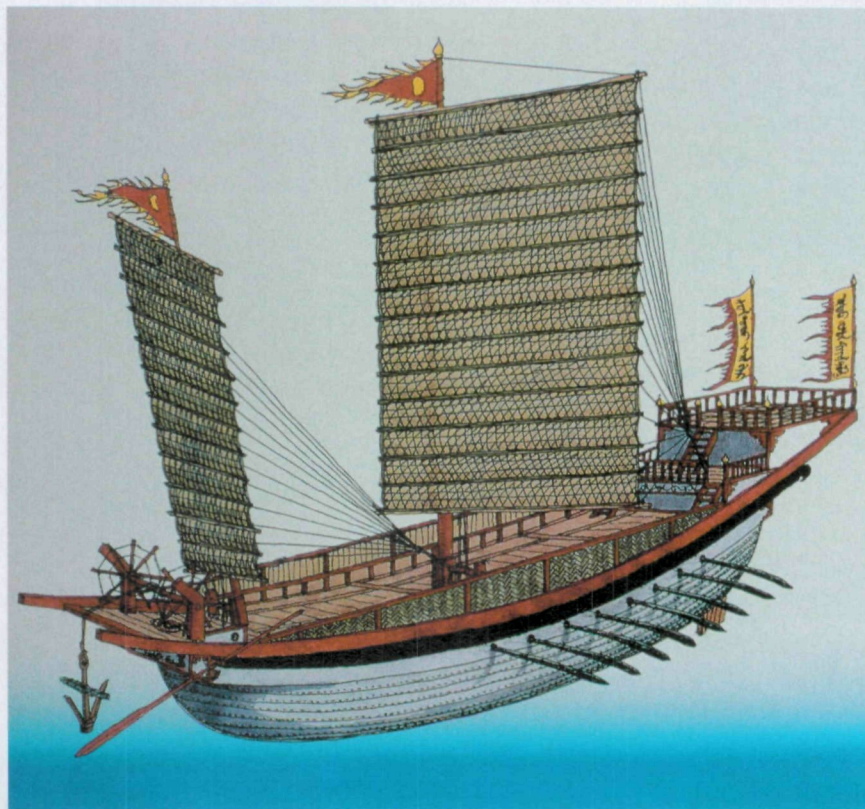
navy Kublai Khan had assembled to conquer China.

While archaeologists have excavated only a portion of the vast naval battlefield of 1281, they can now offer a reconstruction of the failed invasion that separates fact from legend. Kublai Khan's forces embarked on an armada of ships of different types. Assembling off the Japanese coast, they were denied a landing spot of sufficient size by waiting samurai and the stone defensive wall that ringed the site of the 1274 invasion. From small boats the samurai harassed the invading fleet, forcing it to anchor close to shore in tight quar-

ters. Fire ships took out some of the Mongol transports, and as the battle of attrition dragged on, a seasonal typhoon's fortuitous arrival smashed into the larger ships, sending their crews and cargoes to the bottom. The lighter ships had more room to maneuver and were able to escape the harbor. (Only a handful of timbers Sasaki analyzed appear to be from the Korean-built landing craft.)

To the victorious Japanese the storm seemed god-sent, and while the legend of the *kamikaze* that resonated through Japanese history over the centuries inspired the suicidal—and ultimately futile—aerial assaults against Allied ships in the latter stages of World War II, it also prompted the decades-long quest to find Kublai Khan's lost fleet and learn what really happened so long ago off Japan's Kyushu coast. **MH**

For further reading James Delgado recommends his own Khubilai Khan's Lost Fleet: In Search of a Legendary Armada.



Based on years of research, this reconstruction gives a good idea of the layout of Kublai Khan's warships. The vessels—the product of generations of Chinese ship-building expertise—were among the most advanced ships of the Medieval period.

DRONES DON'T DIE

ONCE SCORNE AS LITTLE MORE THAN TOYS,
MILITARY ROBOTS NOW PLAY A KEY ROLE ON MODERN-DAY BATTLEFIELDS

BY P. W. SINGER

The thousands of unmanned aerial systems in today's U.S. military inventory are high-tech reconnaissance and attack platforms that undertake missions too long or too dangerous for human pilots. Though these systems have revolutionized combat in the 21st century, they share a strange but true Hollywood heritage.

World War I British flyer Reginald Denny became a postwar stunt pilot and then moved to Hollywood to work as an actor. Denny appeared in more than 100 movies, and while horsing around on various film sets, he became a hobbyist of radio-

controlled model airplanes. In 1934 he opened the Reginald Denny Hobby Shops on Hollywood Boulevard. As World War II loomed, Denny thought his radio-controlled planes would make perfect target drones for anti-aircraft gunners. In the late 1930s he pitched the U.S. Army on his RP-4 Radioplane, the "Dennymite," powered by a 6-hp engine with a 12-foot, 3-inch wingspan. In 1940 the Army ordered 53 of the RP-4, redesignating it the OQ-1. A few months later the attack on Pearl Harbor and America's entry into the war created an urgent need for anti-aircraft gunners—and target drones. During the war the

U.S. military bought nearly 15,000 Dennymites, making the type the first mass-produced unmanned plane in history.

While science fiction directly inspired many of the weapons we now use, military robotics actually has a lengthy history. Attempts to build lifelike machines stretch back to ancient Greek mathematician and scientist Archytas of Tarentum (400–350 BC), who built a steam-propelled mechanical dove. The first real advances in what we now call "military robotics" started with Nikola Tesla (1856–1943), the pioneer electrical engineer and rival of Thomas Edison.

Designed for long-duration reconnaissance and attack missions, modern remotely piloted aircraft—such as this RQ-1 Predator being prepped for a flight over Iraq—are the technological descendants of the tiny, World War I-era Kettering Bug biplane.



STAFF SGT. JEREMY T. LOCK/U.S. AIR FORCE

In 1898 Tesla demonstrated a radio-controlled motorboat to a government representative, suggesting the potential military application of his technology. But the man burst out laughing at the very idea of such weapons being either useful or even viable. Tesla would not be the last inventor to learn that what was technically possible often mattered less than whether it was bureaucratically imaginable.

Tesla's peers laid the foundations for unmanned vehicles and weapons as World War I began. When the war devolved into a trench-warfare stalemate, remote-controlled vehicles gained appeal as a means to break the deadlock: Land-based devices included the electric dog, a three-wheeled supply cart designed to follow the lamp of its controller; more deadly was the land torpedo, an armored tractor meant to trundle 1,000 pounds of explosives into enemy trenches. In the air the first of what we now call cruise missiles was the Kettering Bug, a tiny airplane that used a barometer/altimeter, a mechanical counter and a preset gyroscope to fly on course and then

crash into a target. The war ended before it could be used in combat.

The only system operationally deployed during World War I was Germany's FL-7 wire-guided motorboat. Designed to be rammed into

“While science fiction directly inspired many of the weapons we now use, military robotics actually has a lengthy history”

enemy ships, it carried 300 pounds of explosives. FL-7 drivers initially sat ashore atop 50-foot towers, later aboard seaplanes. Both methods proved unwieldy, however, so in 1916 the Germans put Tesla's wireless radio-control system into service. In October 1917, off the coast of German-occupied Belgium, an FL-7 struck and damaged HMS *Erebus*, a British monitor that had

been bombarding German naval bases at Ostend and Zeebrugge.

In World War II Germany again proved more inclined than its enemies to develop and use unmanned systems. The vehicle that saw most use was the Goliath tracked mine (see P. 23), which carried 100 pounds of explosives. Designed to be steered into enemy tanks and bunkers, it was about the size of a small go-cart, powered at first by electric motors and later by 12.5-hp gasoline engines. The Germans built some 7,000 Goliaths, using them on the Eastern Front, at Normandy and during the Warsaw Uprising. Its effectiveness was limited, however, by its low speed, poor ground clearance and vulnerability to small-arms fire.

The Germans were equally revolutionary in the air, deploying the first workable cruise missile (the V-1) and ballistic missile (V-2). They were also the first to deploy remotely piloted—as opposed to preprogrammed—aerial drones. The FX 1400 “Fritz” was a 3,000-pound (1,400-kg) glide bomb with a 700-pound warhead, four small wings, controllable tail surfaces and





U.S. AIR FORCE MUSEUM

The Kettering aerial torpedo—better known as the “Bug”—appeared at the end of World War I. It had a range of about 40 miles, was guided and stabilized by a simple gyroscope and carried 180 pounds of explosives.

a rocket motor. The Germans would drop the device at high altitude from a Dornier Do 217 bomber. A bombardier would then steer the Fritz via radio link using a joystick. In September 1943 a fleet of Fritz-carrying Do 217s attacked an Italian naval fleet defecting to the Allies near Sardinia. One bomb damaged the battleship *Italia*. Two others hit the battleship *Roma*, which broke in two and sank in minutes, taking more than 1,200 crewmen to their deaths. Germany built about 2,000 of these remote-controlled bombs, though by that stage of the war Allied air superiority generally negated the threat.

In 1944 the United States’ focus on aerial weapons led the U.S. Army Air Forces and U.S. Navy to launch Operations Aphrodite and Anvil, respectively. The idea was to strip heavy bombers of all unnecessary equipment, then pack them with 10 tons of Torpex, an explosive more powerful than TNT. A crew would get the plane in the air, arm the explosives and then bail out. A nearby mother ship would then take radio remote control and, using television cameras mounted in the drone’s cockpit, steer the plane into targets too well protected for manned bombers to risk approaching.

On Aug. 12, 1944, the Navy sent a converted B-24 Liberator from England to take out a suspected German super-gun in northern France that supposedly could hit London, more than 100 miles away. But the volatile Torpex detonated prematurely, vaporizing the Liberator and killing its crew, pilot Lieutenant Wilford J. Willy and co-pilot Lieutenant Joseph P. Kennedy Jr. Kennedy’s younger brother, John, would inherit the family’s hopes, while the Army and Navy terminated the operations.



“The Germans were equally revolutionary in the air, deploying the first workable cruise missile, the V-1 [above]”



U.S. ARMY/NATIONAL ARCHIVES

Though known to Allied troops as the “beetle tank,” Germany’s Goliath was actually a remote-controlled tracked mine that entered service in 1942. Germany deployed more than 7,500 of the lethal vehicles.

Aphrodite and Anvil weren’t the only Allied remote-control weapon programs. Starting in early 1944 American B-24s dropped more than 450 Army-developed VB-1 Azons—1,000 pound radio remote-control glide bombs steered visually by bombardiers—over the Pacific and Burma.

The evolution of remotely operated weapons, including aircraft, slowed considerably in the immediate postwar years. The newly independent U.S. Air Force particularly frowned upon unmanned aircraft as a professional threat. Indeed, the Pentagon initially left further development of such systems to the Army and Navy.

Unmanned systems improved in the decades following World War II, though the only substantial military contract awarded in this period was to Ryan Aeronautical in 1962 to manufacture an unmanned reconnaissance aircraft. The resultant air-launched, jet-powered drone, the Model 147 Lightning Bug, and its many high- and low-altitude variations, flew 3,435 missions (photo reconnaissance, decoy, chaff dispensing, radar-jamming and propaganda drops) over Southeast Asia from 1962 to 1975. Overall, though, the Vietnam experience was as bad for robotics as it was for the broader American military. The uses of such unmanned systems were mostly classified,

so there was little public knowledge of their relative successes and little impetus to solve the problems encountered.

The next major U.S. military contract toward unmanned aircraft came in 1979 with the Lockheed MGM-105 Aquila program. The Army intended for the Aquila to be a small,

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PHC JEFF HILTON/DEPARTMENT OF DEFENSE

The U.S. Navy's RQ-2 Pioneer drone made history in 1991 when Iraqi troops surrendered to one rather than be hit by the battleship guns for which the UAV's cameras were finding and identifying targets.

propeller-powered drone that could circle over the front lines and send back information on the enemy's numbers and intentions. But the Army began to load up the plane with all sorts of new requirements, which made the aircraft heavier, more costly and more vulnerable. By 1987 the program that originally budgeted \$560 million for 780 Aquila drones had spent more than \$1 billion for just a few prototypes. The Aquila was cancelled and the cause of unmanned vehicles set further back, again more by policy decisions than by the technology itself.

While the United States used such smart weapons as precision-guided bombs with great success in the 1991 Persian Gulf War, unmanned systems didn't play a major role. The only true success story in the conflict was the Navy's use of the Israeli-developed Pioneer drone, an unmanned plane similar to the Aquila. The Navy used the UAV to pinpoint targets for the 16-inch guns of its World War II-era battleships. During one mission a Pioneer overflew a group of Iraqi soldiers, who, rather than waiting to be hit by a 2,000-pound high explosive shell, waved white sheets and undershirts at the drone—the first time in history that human soldiers surrendered to an unmanned system.

While unmanned aircraft accelerated in capability during the early 1990s, the 1995 integration of the Global Positioning System marked what one U.S. Air Force officer called a “magic moment” in UAV history. Military operators could now dispatch GPS-equipped UAVs anywhere in the world and undertake reconnaissance and targeting missions with extreme precision. Such systems were far more intuitive to operate, while the real-time information they provided was more detailed and useful. Newly capable systems such as the General Atomics RQ-1 Predator and Northrop Grumman RQ-4 Global Hawk made their combat debuts in NATO air operations against Serbia during the 1999 Kosovo Conflict, gathering timely information on everything from air defenses to refugee movements.



IMAD AL-KHOL/AL-REUTERS

While robotics engineers have designed ground robots to undertake a variety of military tasks, those used to deal with unexploded ordnance and IEDs—such as this Mini-Andros II—have proven especially valuable.

By the start of the 21st century the technology had matured, each year getting more effective and easier to use. Moreover, unmanned systems were garnering a portfolio of success stories that proved their value. Since the 2001 terrorist attacks on America, the amount spent on ground robots has roughly doubled each year, while the amount spent on aerial systems has grown by around 23 percent annually.

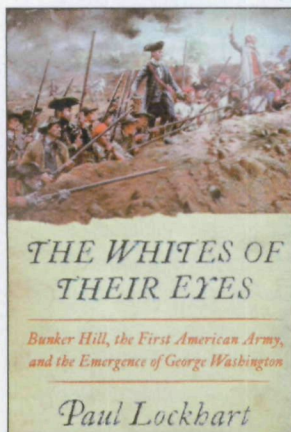
As U.S. forces deployed to Afghanistan and Iraq, they faced enemies that not only tried to hide among the civilian populace, but also used such indirect methods of attack as improvised explosive devices (IEDs). Such scenarios are tailor-made for UAVs, which can linger over a site to investigate potential threats, thus keeping soldiers from harm.

With each life saved and each new use found for them in combat, acceptance of and demand for the unmanned systems has grown. Indeed, U.S. soldiers in Afghanistan were so pleased with prototypes of the tactical PackBot—used to locate and dispose of IEDs—that they refused to return them when the 2001 field test ended. Manufacturer iRobot has since sold more than 2,500 of the devices to the military.

The U.S. military inventory now comprises more than 12,000 ground robots and 7,000 UAVs. The robot of science fiction is thus now a very real part of war, one spreading globally. In addition to the United States, 44 other countries are now pursuing unmanned military systems. It's not that the human role is disappearing from war. War remains a human endeavor, driven by our flaws and reflecting our best and worst traits. Rather, what's happening now is akin to the first use of gunpowder, airplanes or armored vehicles: A technology that started out as abnormal and limited in use and acceptance is revolutionizing the tools we use to fight and rapidly becoming an everyday aspect of 21st century military operations. **MH**

*For further reading P.W. Singer recommends his own *Wired for War: The Robotics Revolution and Conflict in the 21st Century* and Max Boot's *War Made New*.*

Bunker Hill Somewhat Debunked



The Whites of Their Eyes: Bunker Hill, the First American Army and the Emergence of George Washington, by Paul Lockhart, Harper, New York, 2011, \$27.99

Paul Lockhart begins his entertaining account of the Battle of Bunker Hill by downplaying its military significance. The fighting was bloody but “laughably

puny” in scale, and it ended with a British victory that decided nothing. Several months of stalemate followed until the Redcoats departed Boston in March 1776, after George Washington installed his artillery on Dorchester Heights. Even so, the Battle of Bunker Hill remains entrenched in American legend, right up there with Gettysburg and D-Day.

The power of Bunker Hill as an image in national mythology has made it susceptible to misconception and stereotype. Thus the British are remembered as robotic incompetents, marching in dense ranks to their doom. The Americans, by contrast, appear as free-thinking, sharpshooting Patriot farmers, under-

equipped but full of fight. Lockhart debunks any such myths, replacing them with more balanced portrayals of the battle and its combatants.

The Redcoats who fought at Bunker Hill were somewhat better trained than their American counterparts, but they were raw, inexperienced and prone to crack under the strain of combat. Fortunately for them, Maj. Gen. William Howe and his officers were solid tacticians. The Americans were neither well led nor particularly proficient marksmen—but they

had passion, and that made all the difference.

The most refreshing aspect of Lockhart’s account is his focus on the common soldiers and civilians who populated this event. Doing so allows him to present a broad and interesting new perspective on the battle. Big names like Howe, Israel Putnam and Artemas Ward appear regularly, too, and George Washington shows up in the battle’s aftermath. The author’s smooth narrative of the fighting presents Bunker Hill as a public event that crowds of civilians

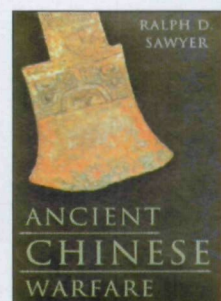
witnessed like an act onstage. This nicely written and carefully researched book offers exciting new insights on the Revolutionary War.

—Edward G. Lengel

Desert Hell: The British Invasion of Mesopotamia, by Charles Townsend, Belknap Press, Cambridge, Mass., 2011, \$35

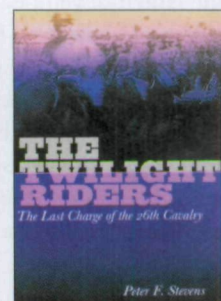
While reading Charles Townsend’s new book, *Desert Hell*, one cannot help but reflect on George Santayana’s famous observation that “those who cannot remember the past are condemned to repeat it.” The parallels between the British experience in what was then known as Mesopotamia between 1914 and 1925 and the American experience in Iraq between 1990 and today are difficult to ignore. Both nations’ reasons for invading the country were much the same: to protect their access to the region’s oil and prevent it from falling under the influence of either Russia or Persia (or Iran, as it is now known). Both the United Kingdom and the United States went in believing they could accomplish the mission with scant trouble, and neither had an exit strategy. Both countries tried to leave behind a national state in a region that was little more than a patchwork of rival tribal and religious enclaves. Both powers relied heavily

RECOMMENDED



Ancient Chinese Warfare, by Ralph D. Sawyer

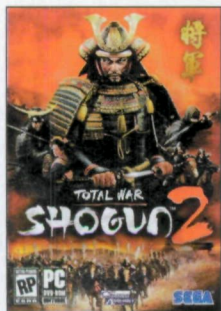
Arguably the world’s leading specialist in Chinese military and intelligence issues and the translator of several important early works on Chinese tactics and strategy—notably Sun-tzu’s *Art of War*—Sawyer comprehensively charts in this massive volume the technological, logistical and strategic foundations of ancient China’s military might.



The Twilight Riders, by Peter F. Stevens

In this fascinating volume, Stevens tells the full story of the U.S. 26th Cavalry Regiment’s magnificent but ultimately doomed campaign against Japanese forces invading the Philippines early in World War II—including the last combat charge by an American cavalry unit, at Morong in January 1942.

GAMES



**Total War:
Shogun 2,**
by Sega, 2011,
\$49.99 (PC)

Set in 16th century feudal Japan, *Total War: Shogun 2* covers less ground than previous entries in the *Total War* series, but its sole focus on the warring factions of Japan allows for a stronger emphasis on strategy and unit relationships.

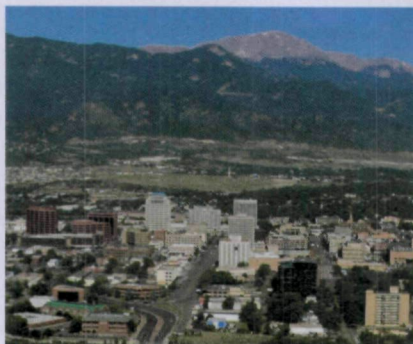
The action begins shortly after the Onin War, when the island nation split into various houses, each controlled by rival clans led by warlords known as *daimyos*. As your chosen clan's *daimyo*, you must manage your land and resources and position your forces to clash with rival clans, conquering more and more territory until you emerge as Japan's supreme military ruler, or shogun.

A staple of the *Total War* series is its intriguing blend of turn-based strategy and real-time strategy gameplay. *Shogun 2* honors that precedent, and with a careful eye toward historical tactics and weaponry of the era, it faithfully re-creates the combat and broader warfare of feudal Japan.

—Ryan Burke

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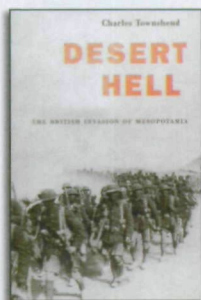


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on modern technology, particularly airpower; and Britain's reliance upon the Royal Air Force to police Iraq from the air in the 1920s makes an interesting comparison with the United States'



use of drone technology today.

Mesopotamia means "between the rivers" in Greek, a language spoken by neither the inhabitants nor the ruling Ottoman Turks. When Britain and

Turkey went to war in 1914, the British believed the Ottoman Empire was so weak that it was ready to fall apart. Consequently, the British sent a military expedition from India up the Persian Gulf to occupy oil-rich Mesopotamia before it fell into the

hands of either the Russians to the north or the Persians to the east. So little thought had gone into the invasion that the British simply employed forces diverted from the Western Front. "Messpot," as British Tommies came to call the region in their Kiplingesque manner, developed into a grueling military campaign and police action that dragged on for more than a decade, long after World War I had ended.

In the end the British did succeed in setting up a state in the war-torn region. Nevertheless, as the author explains, we are living today with the repercussions of what they did in Iraq in the teens and '20s. It was the British, for example, who recognized the independence of the Emirate of Kuwait, the occupation of which by Iraq touched off the 1991 Gulf War. It was also the British who forced the ethnic Kurds to become sub-

merged in Iraq without an independent nation of their own. Britain left behind a king reigning over a kingdom that had neither ethnic or religious unity nor a national identity.

Desert Hell is an insightful study of the military and political strategies played out in Iraq between 1914 and 1925. Beyond merely being a timely work, it is actually a pity this book didn't appear earlier.

—Robert Guttman

Nothing Less Than War: A New History of America's Entry into World War I, by Justus D. Doenecke, University Press of Kentucky, \$40, 2011

Americans today argue over the wisdom of a war only after the fighting begins. Matters were handled differently in the



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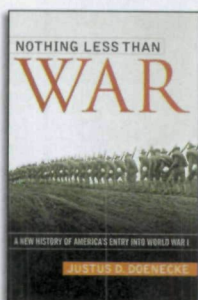
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past when Congress, not the president, decided on war. Having covered the period before Pearl Harbor in *Storm on the Horizon: The Challenge to American Intervention, 1939-41*, historian Doenecke delivers an equally meticulous and lucid account of the furious, often violent controversy that preceded the United States' declaration of war in April 1917.

President Woodrow Wilson and his administration greeted Germany's August 1914 invasion of Belgium as a catastrophe for that tiny nation but only a vague threat to America. Few quarreled with Wilson's declaration of neutrality, but most, including Wilson, preferred the Allies.

Few scholars fail to deplore the U.S. Army's unreadiness for war. With fewer than 100,000 men, its clumsy 1916-17 pursuit of Pancho Villa into Mexico did not inspire confidence. As a result, histo-

rians tend to favor prewar "preparedness" advocates over pacifists and Midwest Progressives who opposed military spending. This is Monday morning quarterbacking, Doenecke points out. If preparedness



advocates had proposed sending a million men across the sea in 1914 to join the slaughter in the European trenches, Americans would have rebelled. Pro-Allied activists preferred to warn that a German victory would be followed by an invasion of America, but few were convinced, and Congressional opponents had no trouble watering down defense bills.

The most pugnacious preparedness advocate was, of course, ex-president

Theodore Roosevelt, who remained the nation's most popular political figure. Opposing him was the only sincere neutral in Wilson's cabinet, Secretary of State William Jennings Bryan. Wilson and his colleagues considered Bryan a simpleton, but his unheeded warning that massive loans to the Allies would bind America irretrievably to their cause seems a no-brainer today. When Bryan resigned in June 1915 over Wilson's aggressive response to the deaths of American citizens when a German U-boat sank the British passenger liner *Lusitania*, the president appointed pro-Allied Robert Lansing. Neither secretary of state greatly influenced Wilson, who handled his own foreign policy with frequent advice from trusted friend Colonel Edward House. Although an experienced political operative, House was an amateur diplomat

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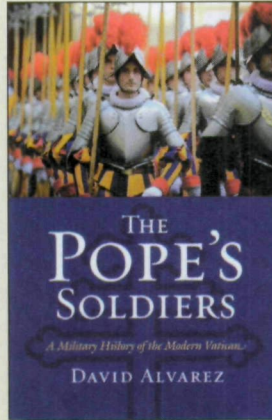
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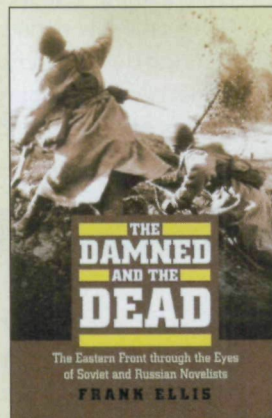

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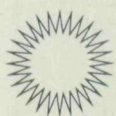
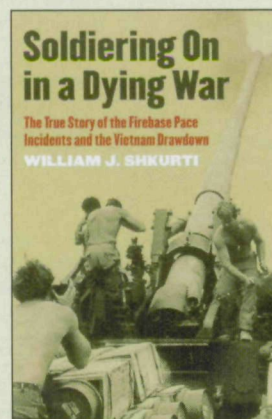
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and was easily influenced by British leaders during several European trips.

Two months after Germany's Feb. 1, 1917, declaration that it would conduct unrestricted submarine warfare, Wilson asked Congress to declare war. Fierce debate followed, and in the end 50 representatives and six senators opposed the declaration, but many voting in favor admitted they did so only to demonstrate their patriotism.

Doenecke delivers a vivid, opinionated and surprisingly recognizable account of American public affairs a century ago. In an age before electronic media, Americans were bombarded by speeches, debates and the printed word, all of which delivered an avalanche of insight, abuse, prejudice, propaganda and twaddle easily recognizable to those of us suffering through the age of the 24-hour news cycle. Doenecke points out that then, as now, "experts" warned of the dire consequences of both war and peace, and almost everyone got it wrong. This is excellent history.

—Mike Oppenheim

EVENTS

Memorial Day Weekend

May 28–30, 2011

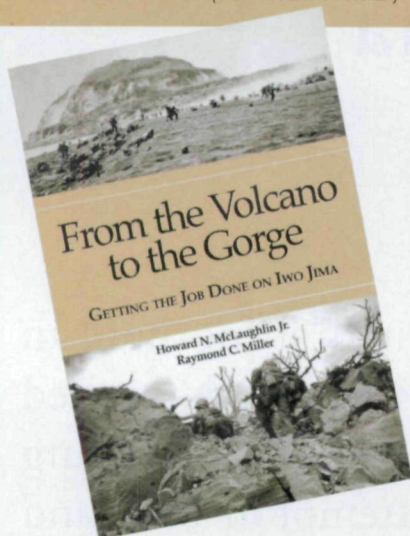
Washington, D.C.

Recent weeks have seen the death of Frank Woodruff Buckles, 110, America's last known soldier to serve overseas in World War I (see PP. 8 and 12), and the continued passing of nearly 1,000 World War II veterans each day. They and millions more veterans of the wars in Korea, Vietnam, the Persian Gulf and numerous smaller conflicts deserve our collective gratitude. As Aristotle phrased it in the 4th century BC, soldiers are those "who make war that we may have peace."

But veterans themselves are the first to point to those who didn't make it home, to express gratitude for *their* selfless sacrifice. That is the tradition be-

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- Nils Peter Mickelson (USN Vietnam veteran)



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hind Memorial Day—born as Decoration Day in the vacuum of loss that followed the Civil War and extended after World War I to honor all who have died in our nation's service. Each year millions of Americans gather in Washington, D.C., to mark that service with wreath-laying ceremonies, concerts and a parade.

Just across the Potomac at Arlington National Cemetery (open 8 a.m.–7 p.m., www.arlingtoncemetery.mil) members of the 3rd U.S. Infantry (The Old Guard) will place American flags before each of the 260,000-plus gravestones and 7,300 columbarium niches at the cemetery. The flags remain up all weekend.



R.D. WARD/DEPARTMENT OF DEFENSE

Sunday, May 29, brings the Rolling Thunder Motorcycle Rally (noon departure from the Pentagon, www.rollingthundermotorcyclerrally.com) for a circuit of the National Mall, followed by speakers and music at the Reflecting Pool by the Lincoln Memorial. That evening at 8 p.m. on the West Lawn of the U.S. Capitol, PBS hosts its free National Memorial Day Concert (gates open at 5 p.m., www.pbs.org/memorialdayconcert), featuring the National Symphony Orchestra and other performers to be announced.

On Memorial Day, Monday, May 28, at 11 a.m. Arlington will host a wreath-laying ceremony at the Tomb of the Unknowns. Finally, at 2 p.m. marching bands and veterans groups from all 50 states kick off the National Memorial Day Parade (Constitution Avenue, between 7th and 17th Streets, www.nationalmemorialdayparade.com).

—Editor

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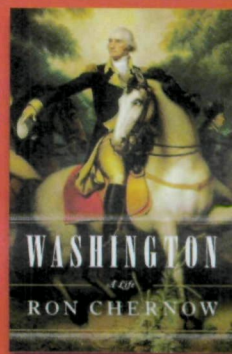
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Hallowed Ground

The Kahlenberg, Vienna

By David T. Zabecki

The Ottoman Turks gained their first foothold in Europe at Gallipoli in 1354. In 1529 they reached Vienna and almost took the capital of the Habsburg Empire. They made a second attempt in 1683 and would have succeeded if not for the intervention of a cavalry relief force under the overall command of Poland's King Jan III Sobieski.

In late 1682 Ottoman Sultan Mehmed IV sought to take advantage of the political and strategic difficulties of Leopold I, the Habsburg ruler and Holy Roman emperor. Leopold was locked in a

struggle for territory and power with France's King Louis XIV, and both the French and Ottomans were supporting a Protestant revolt in the Habsburg portion of Hungary. When the Austrians moved to suppress the uprising, the Hungarians appealed to the Ottomans for military intervention. Seeing his opportunity, Mehmed sent an army of some 150,000 troops under Grand Vizier Kara Mustafa Pasha up the Danube to take Vienna.

The Ottomans reached the city on July 7, 1683. As they approached, Leopold, his court and tens of thousands of inhabitants fled. The defense of Vienna was left to the garrison of some 11,000 troops under Count Ernst Rüdiger von Starhemberg. The defenders demolished houses outside the city walls to clear fields of fire for their superior artillery. (The Ottomans lacked sufficient heavy siege pieces.) Supporting Starhemberg's force was a 33,000-man



The two-month Ottoman siege ended abruptly when Polish King Jan III Sobieski led his Winged Hussars and allied cavalry in a downhill charge through the Turks.



© ALLOVER PHOTOGRAPHY/ALAMY

imperial force under Charles V, Duke of Lorraine, which harassed the Ottomans outside the city walls.

Although vastly outnumbered, Starhemberg and his troops fought the Turkish besiegers to a standstill for two months. But time was not on the defenders' side. Ottoman sappers had undermined the city walls and set off black powder charges, opening several breaches, and by early September Starhemberg's force was down to half its original strength. In late August, however, relief columns originating from Munich, Dresden and Warsaw converged on Vienna.

Sobieski's 30,000-man army completed the 350-mile march from Poland in three weeks flat, responding to an earlier mutual defense pact made with Leopold. The other allied col-

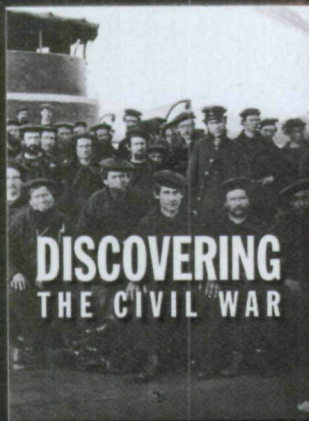
The Kahlenberg offers a sweeping view of modern-day Vienna, as well as an appreciation for the steep incline the allied cavalymen had to negotiate.

umns comprised some 20,000 Bavarians, Swabians and Franconians under Prince Georg Friedrich of Waldeck and about 9,000 Saxons commanded by Johann Georg III, elector of Saxony. When the three allied columns linked up with Charles' force in early September, Sobieski assumed overall command.

The allies deployed along the ridge-line north and northwest of the city, the left flank centered on 1,585-foot Kahlenberg, the dominant high ground of the entire battlefield. The Ottomans continued their siege but early on September 12 launched a failed spoiling

attack against Sobieski's forces. Later that day the Saxon and imperial troops swept down from Kahlenberg. The battle raged until early evening when Sobieski, at the head of his celebrated Winged Hussars, led the allied cavalry downhill straight into the Ottoman camps. Simultaneously, the Vienna garrison sortied outside the city walls and pressed the Turks from the other direction.

The Ottomans were in full flight by nightfall, but not before executing thousands of Christian prisoners. The allies suffered about 4,500 dead and wounded, while the Ottomans lost 15,000 dead and wounded and 5,000 prisoners. The following month Sobieski pursued the Ottomans into Hungary and handed them another serious defeat. The Muslim armies



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never again came so close to conquering Europe.

That was also the high-water mark of Polish military glory; the kingdom was already in decline. Sobieski felt the Austrians never fully appreciated his contributions at Vienna, and he was right. The strategic result was the strengthening of the Habsburgs at the expense of Poland. Little more than a century later Austria ruthlessly participated in two of the three partitions of Poland, wiping that nation off the European map for the next 123 years.

The battlefield today is difficult to discern, as little now remains of

“The battle raged until early evening when Sobieski, at the head of his famed Winged Hussars, led the allied cavalry downhill straight into the Ottoman camps”

the siege lines or the old city walls. One place where it's possible to get a feel for the battle is the Kahlenberg, which still affords a panoramic perspective of Vienna and the Danube. Although vineyards largely cover the slope today, visitors can appreciate the precipitously steep terrain down which Polish and imperial cavalymen charged to overwhelm the enemy. St. Joseph's Church, at the summit of Kahlenberg, serves to commemorate the battle. Supported by the Polish government, it rests on the foundations of the Church of the Camaldolites, where Sobieski received Mass before the battle. A small museum in the church holds one of the few original suits of Winged Hussar armor anywhere in the world. **MH**

War Games



Mobile Mongols

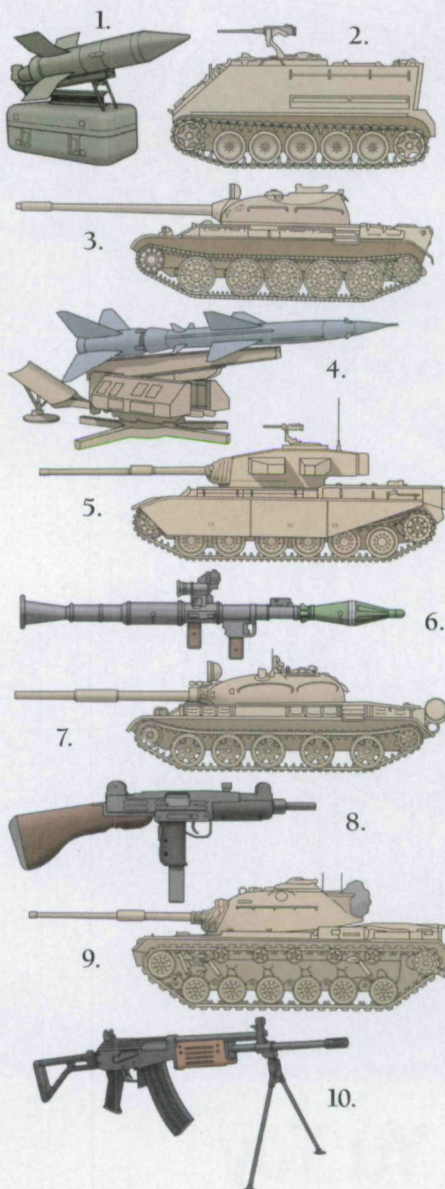
Those hordes sure got around. Match the following battles to the opponents that either fell to or foiled the wrath of khan:

1. Baghdad, 1258
2. Liegnitz, 1241
3. Kalka River, 1223
4. Bagan, 1287
5. Ain Jalut, 1260
6. Alamut, 1256
7. Samarkand, 1220
8. Mohi, 1241
9. Deshun, 1227
10. Ham Tu, 1285

- ___ A. Khwarezmians
- ___ B. Tanguts (Western Xia)
- ___ C. Burmese
- ___ D. Da Viet (Vietnamese)
- ___ E. Hungarians
- ___ F. Arabs
- ___ G. Teutonic Knights, Poles
- ___ H. Ismaili Hashishim
- ___ I. Kievan Rus, Polovtsians
- ___ J. Egyptian Mamluks

Sinai Smackdown '73

The Egyptians and Israelis brought a lot of hardware to the Yom Kippur War clash at Chinese Farm (see P. 26). What can you ID?



- ___ A. T-62
- ___ B. RPG-7
- ___ C. Sh'ot Bardelas
- ___ D. M113
- ___ E. Uzi
- ___ F. Galil
- ___ G. T-55
- ___ H. S-755 Tayir as Sabah
- ___ I. 9M14 Malyutka
- ___ J. M48A3 Magach 3

Answers: A7, B9, C4, D10, E8, F1, G2, H6, I3, J5

Answers: A7, B6, C5, D2, E8, F10, G3, H4, I1, J9



Droning Through History

Though remote-controlled drones seem the stuff of future combat, they're hardly new to the game. Witness the following:

1. In what year did Siemens-Schuckert begin experiments with its wire-guided *Torpedogleiter*?

- A. 1913
- B. 1915
- C. 1918
- D. 1938

2. How much of an explosive payload was the unmanned Kettering Bug expected to carry in 1918?

- A. 75 pounds
- B. 100 pounds
- C. 250 pounds
- D. 500 pounds

3. What happened to one remote controlled, unmanned B-17 launched during Operation Aphrodite in 1944?

- A. It destroyed a V-1 site
- B. It destroyed a U-boat pen
- C. It damaged a railroad depot
- D. It failed to explode.

4. How many photoreconnaissance sorties over North Vietnam did a Ryan Model 147 named *Tom Cat* complete before being shot down?

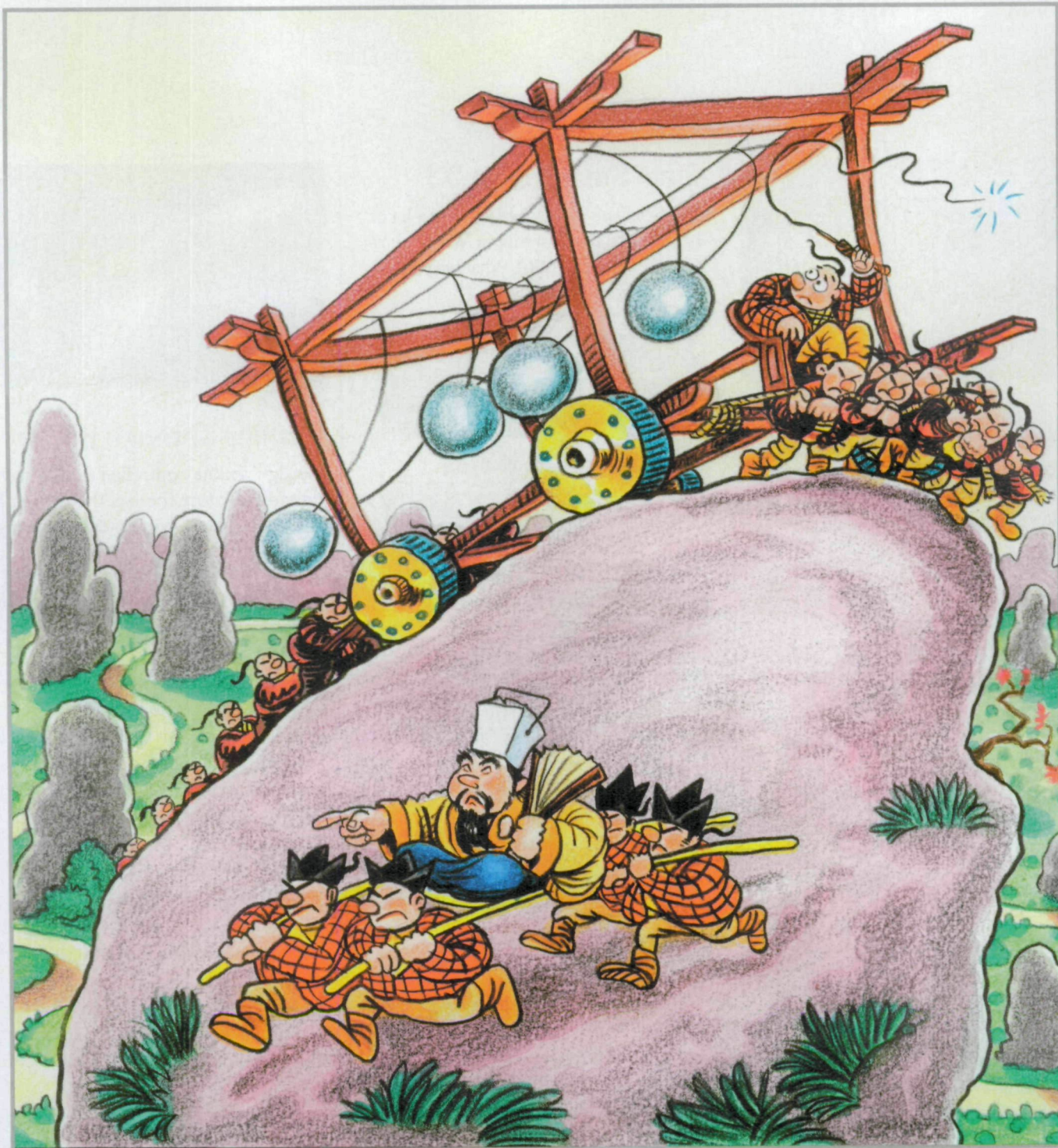
- A. 12
- B. 52
- C. 68
- D. 97

5. What was the first UAV to see operational military service?

- A. MQ-1B Predator
- B. Tadiran Mastiff
- C. RQ-2 Pioneer
- D. MQ-9A Reaper

Answers: B, C, D, C, B

Weapons we're glad they never built



Sun-tzu's Xec Yu Toy

By Rick Meyerowitz

What's new, Sun-tzu? Awaking from a nap one afternoon in 340 BC, Sun-tzu, the great military theorist, announced he'd had a dream: "Army with biggest balls sure to win biggest battles." He immediately ordered his military to build the most terrifyingly annoying weapon ever seen in the ancient world: The giant Xec Yu Toy.

Sun's plan was to build 1,000 Xec Yu Toys to place on mountain tops. The deafening, irritating, inexorable "CRIK CRAK!"

would drive all foreign invaders away. But the sound of the weapon was so annoying, his own army preferred death to being within earshot of the balls. Sun died disappointed. The Chinese were forced to abandon the Xec Yu Toy until the mid-20th century, when the Chinese Communist Party enacted a long-term plan to place one of the weapons on the desks of the presidents of all the world's great corporations. The toys are now in place awaiting their orders. Sun-tzu would be very happy. **MH**